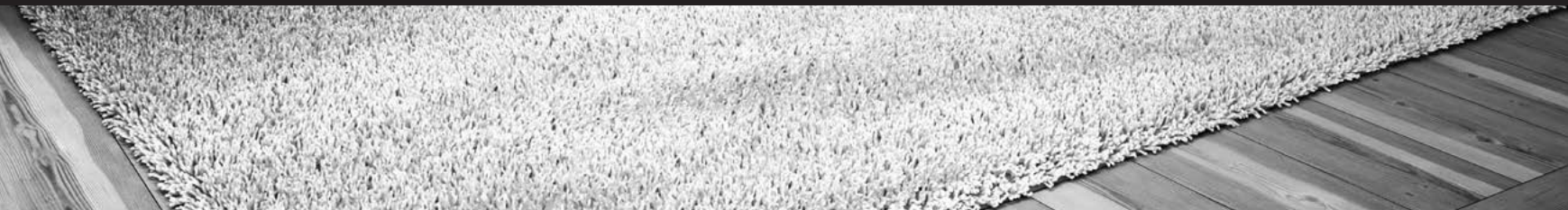
Installation and Operating Instructions for

Stoves Selection

SPARTHERM®
Feuerungstechnik



PREAMBLE – QUALITY PHILOSOPHY

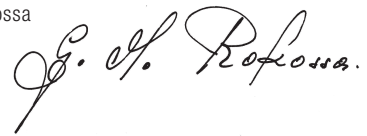
You have chosen to purchase a SPARTHERM stove – thank you for the trust you have placed in us. In a world characterised by an abundance of choice and mass production, our company name is associated with the principles: “High technical quality combined with contemporary design and service for the satisfaction of our customers and to achieve their recommendation.” In combination with our specialist trade partners, we offer you first-class products that touch people on an emotional level, creating feelings of security and comfort. To ensure this is achieved, we recommend that you carefully read these operating instructions so that you can become quickly and comprehensively acquainted with your stove. Besides information on using the stove, these instructions also include important care and operating information for your safety and to maintain the value of your stove, as well as providing you with valuable tips and assistance.

In addition, we will demonstrate how you can operate your stove in an environmentally friendly way. If you have any further questions, please contact your specialist dealer.

Hoping you enjoy a beautiful fire at all times!

Your SPARTHERM Team

G.M. Rokossa



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1. GENERAL INFORMATION

Before your stove is assembled and installed you should meet with the master chimney sweep responsible for such matters in your area. He will advise you on the building regulations and suitability of your chimney and will carry out the acceptance test on your stove. Calculation of the dimensions of the chimney is based on DIN EN 13384 using the set of measured values given in this manual („9. Technical data“ on page 40).

Important for young children, the elderly or the frail: As with all other heating appliances, a guard should be fitted to protect the above persons because both the glass door and the stove cover panels can become very hot in use.

➔ Risk of burns! ➔

Never leave a stove unsupervised when it is lit or when the fire has just gone out. As a basic rule, the stove should not be left unattended for long periods of time when lit.

The protective glove supplied is designed only for protection from heat when operating the control handle and the cold hand. The glove is not fireproof.

When installing and operating your stove and when connecting it to the chimney you must ensure that you comply with national and European standards, the relevant country-specific and local guidelines and regulations and, in Germany, the relevant Heating Regulation (FeuVO) of the state where you live.

The stove should always be operated with the door closed. Modifying the closing system is not permissible.

1.1 TESTED QUALITY

OUR STOVES ARE TESTED TO DIN EN 13240. THE DECLARATION OF PERFORMANCE MAY BE VIEWED AND IS OBTAINABLE FROM WWW.SPARTHERM.COM

These stoves have a self-closing firebox door, and so the door is only ever opened for operating purposes (e.g. cleaning the firebox or putting on more wood). For safety reasons, tampering with the closing mechanism is not permissible and will void the warranty and the operating permit. The warranty and the operating permit will also be rendered void if the customer makes any technical modifications to other parts of the stove.

1.1.1 SCOPE OF SUPPLY

- Vermiculite / fireclay firebox
- Primary and secondary air supply
- Pull-out ash box / ash pan and grate (not all models)
- Self-closing firebox door with high temperature-resistant ceramic glass viewing pane
- Protective glove*
- Rating plate („3.4 Rating Plate“ on page 22)
- Delivered pre-assembled in disposable cardboard packaging
- for ease of transport
- Storage stones (only CUBO M, PIKO M, SENSO L (optional), PASSO M, STOVO M)
- Pump thermostat, thermal discharge safety device ¾", vent valve (only SENSO M H_2O, PIKO H_2O)
- Integral cleaning system with operating lever (only PIKO H_2O)

*Caution: The protective glove supplied is designed only for protection from heat. It is not fireproof.

1.1.2 DAMAGE IN TRANSIT

Please inspect the goods **immediately** upon delivery (visual inspection). Any damage should be noted on your delivery note. You should then inform your stove fitter. Protect the visible parts of the stove from dirt and damage during installation. Only approved and sufficiently strong handling aids should be used to transport your stove.

The following points must be noted to ensure safe transport without any problems:

- The stove should always be transported in the upright position or tilted slightly backwards.
- Hand trucks used as handling aids must load the stove from the rear only.

2. INSTALLATION INSTRUCTIONS

The assembly and installation of your stove should be carried out by a specialist. Before your stove is assembled and installed you should meet with the master chimney sweep responsible for such matters in your area to discuss the suitability of your chimney and the installation location and to clarify any other matters.

2.1 GENERAL REQUIREMENTS FOR INSTALLATION

All relevant national and European standards and local regulations (DIN, DIN EN, state building regulations, heating system regulations, etc.) must be noted and observed when installing, connecting up and operating the stove. Selected relevant regulations are listed below. This list does not claim to be complete.

FeuVo: Heating Regulation of the particular Federal State
LBO: State building regulations or fire protection regulations of
VKF: VKF (Switzerland)
LRV: (Switzerland)
1. BImschV: First Implementing Ordinance to the German Federal Immission Control Act
TROL: Technical Rules of the Stove and
Hot Air Heating System Trade (ZVSHK)
DIN 1298 / EN 1856: Connecting Pieces for Fireplaces
DIN EN 13240: Stoves/Solid Fuel Room Heaters
DIN 18896: Solid Fuel Fireplaces. Technical Rules for Installation and Operation
DIN EN 13384: Flue System Calculating Methods
DIN 18160-1/2: Flue Systems/Domestic Chimneys
DIN 4751 / DIN EN 12828: Heating Systems in Buildings –
Planning Water Heating Systems
VDI 2035: Water Preparation for Heating Systems
Art. 15a: B-VG (Austria)

Fireplaces should only be installed in rooms and at locations where the position, structural conditions and type of use will not create any hazards. The floor area of the room where the fireplace is installed must be of such a type and size that it can be correctly operated in accordance with the instructions.

2.1.1 INSTALLATION LOCATION

Your stove must not be installed:

1. In stairwells and landings, except in residential buildings with no more than two flats.
2. In corridors accessible to the public
3. In garages.
4. In rooms or flats that are vented by ventilating systems or hot air systems using blowers, unless the safe operation of the stove is ensured.
5. In rooms where highly flammable or explosive substances or mixtures are processed, stored or manufactured in such quantities that ignition or explosion would be hazardous.

Room air sealed stoves may be installed in rooms, flats or units of comparable size from which air is extracted with the aid of blowers, such as ventilation systems or hot air heating systems, provided that the negative pressure generated by this equipment does not exceed 8 Pa.

2.1.2 MULTIPLE USAGE

Multiple usage of the chimney in accordance with DIN 18160 is possible as the stove has a self-closing firebox door (A1). Note that all fireplaces connected to the same chimney must also be approved for multiple usage.

In the case of room air sealed stoves:
Multiple usage of the chimney is not permissible.

2.2. ASSEMBLY / INSTALLATION

The floor on which your stove is installed must have sufficient load-bearing capacity. Please note the overall weight (refer to section „9. Technical data“ on page 40). If necessary, load-bearing capacity must be ensured by placing the stove on top of a slab of sufficient thickness for weight distribution purposes.

When selecting the installation location please also note the necessary fire precautions with regard to the floor. („2.2.3 Fire Precautions“ on page 10).

Stability
Tall stoves with storage stones on top are top-heavy and must be secured against accidental toppling.

Appropriate measures may therefore need to be taken to ensure the stability of the CUBO/PIKO M models. SPARTHERM can supply an optional stability aid which enables the stove to be securely fastened to the floor on which it is installed. This is available for the PIKO/CUBO ranges under part no. 1018625 (rotatable) / 1018626 (non-rotatable).

Stand the stove on the floor and level it horizontally, observing the safety distances (refer to section „2.2.3 Fire Precautions“ on page 10). The legs are height-adjustable.

2.2.1 CHANGING THE DIRECTION OF THE FLUE GAS CONNECTION

The stove is supplied ready for use with a top flue gas connection. Alternatively, a rear, side or corner flue connection is possible, depending on the model. To change the flue connection position, the following steps should be carried out:

Changing the flue gas connection direction from top to rear, taking the Senso S as an example

Changing installation from top to rear

Carefully remove the top plate (A) (**Fig. 1**) from the stove and set it aside in a safe place. When removing the top plate take care that the blanking plate on top (B) (**Fig. 1**) does not fall off and get damaged. Depending on the model, the stove plate can either be raised and lifted off, or it may first have to be released by sliding it forward, keeping it level (Stovo model range).

In the case of units with storage stones on top (e.g. CUBO/PIKO M (**Fig. 2**) or a convection air controller (**Fig. 3**) these components should be removed. („2.2.7 Fitting the Storage Stones – Passo M“ on page 14).

Once the top plate has been removed, the flue gas pipe connection (C) screwed on to the stove body (**Fig. 4**) is visible. Undo the hexagon head bolts on the inside to remove it (13 mm spanner). Now remove the blanking plate (D) (**Fig. 5**) on the rear cover panel to allow the flue pipe to pass through. To do this, either break out the perforations or undo two fastening screws, depending on the model.

The blanking plate which is now visible (E) (**Fig. 6**) must be removed by undoing the bolts on the inside (13 mm spanner) and replaced by the flue gas connection (C) removed previously (**Fig. 4**). Fit the blanking plate which you removed (E) to the top flue gas outlet to seal it off. (**Fig. 7**) (bolts, 13 mm spanner)

Make sure that the seals are correctly positioned underneath the blanking plate and the flue gas connection and that they make a tight seal. After fitting the blanking plate, install the optional storage elements and convection air regulator in reverse order and place the cover panels in position. (**Fig. 8**)

Note: The assembly sequence may vary according to the stove model.

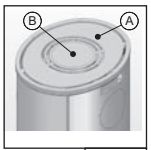


Fig. 1

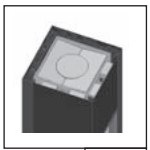


Fig. 2

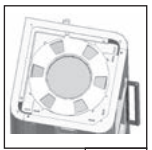


Fig. 3

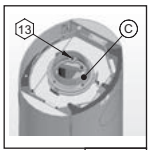


Fig. 4

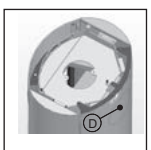


Fig. 5

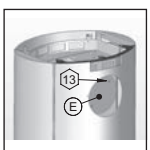


Fig. 6

Fig. 7

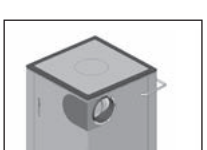
Fig. 8

Special note re the PIKO H_2O model

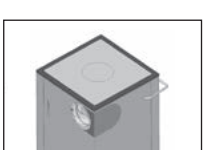
As well as a side and top flue gas outlet, the PIKO H_2O model also offers the option of a corner flue gas connection. If the installation position of the PIKO H_2O stove is already known at the planning stage, the stove can be ordered with the flue gas connection fitted accordingly from the factory. In order to alter the position of the flue gas connection on site, proceed as follows:

Changing installation from top to rear or side

The flue gas pipe can be connected at the rear in three different positions.


Side exit at left

Central exit


Side exit at right

Carefully remove the top plate (A) (**Fig. 9**) from the stove and set it aside in a safe place. When removing the top plate take care that the blanking plate on top (B) (**Fig. 10**) does not fall off and get damaged.

Once the top plate has been removed, the flue gas pipe connection (C) screwed on to the stove body (**Fig. 10**) is visible. Undo the hexagon head bolts on the inside to remove it (13 mm spanner). Now remove the rear cover plate (D) (**Fig. 10**) by undoing the screws. After removing the cover plate, a blind connection for the flue gas outlet can be seen at the rear/side. (E) (**Fig. 11**) Undo it.

Now fit the flue gas pipe connection in the desired position, either at the right/left side or in the rear centre. A separate pipe connection is packed with the stove for use if making a right/left side connection (**Fig. 13**). The top pipe connection is used if making a rear connection. Make sure that the cord seal underneath is correctly positioned and that it makes a tight seal.

The blanking plate which was previously removed (E) should be screwed on as shown in **Fig. 12** to seal off the top flue gas outlet.

Finally, close the open sections of cover panel at the rear of the stove using the cover plates supplied, and place the top plate in position (**Fig. 14**).

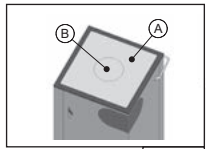


Fig. 9

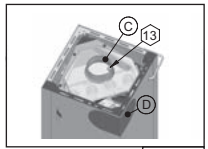


Fig.10

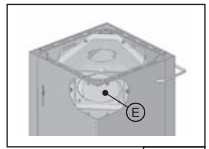


Fig. 11

Fig. 12

Fig. 13

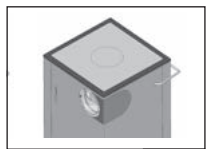


Fig. 14

2.2.2 COMBUSTION AIR SUPPLY

The combustion air supply can be provided in one of two ways, either ‘room air dependent’ as described in section „2.2.2.1 Room Air Dependent“ on page 8 or ‘room air sealed’ as described in section „2.2.2.3 Room Air Sealed“ on page 9.

2.2.2.1 ROOM AIR DEPENDENT

Your stove takes the air it needs for combustion from the room where it is installed (room air dependent operation). An adequate supply of fresh air must be ensured in the room where the stove is installed (for further details refer to the heating systems regulations for the country concerned, DIN 18896, the technical rules, etc.) The installer and the operator of the stove should check the fresh air supply. An adequate air supply for combustion must be ensured when several fireplaces are operated in one room or in adjoining rooms. If the windows and doors are sealed (for example, for

energy-saving reasons) it may be the case that an adequate fresh air supply cannot be guaranteed. The stove draught may be adversely affected. This can be detrimental to your health and also, in some cases, to your safety. If necessary, an additional air supply should be provided by fitting an air inlet near the stove or by fitting a combustion air intake pipe which connects with the external air (see „2.2.2.2 Separate Combustion Air Supply“ on page 9) or with a well ventilated room (not the room where the stove is installed). In particular, it must always be ensured that the necessary combustion air intakes remain operational when the fireplace is in use. Operating a ventilating system at the same time, e.g. an extractor hood or bathroom fan, in the same room or in an adjoining room can adversely affect the operation of the stove (even causing smoke or flue gas to leak out into the room, despite the firebox door being closed). Ventilating devices must therefore not be operated at the same time as the stove unless suitable measures are taken to maintain the air supply to the stove. („2.2.2.3 Room Air Sealed“ on page 9).

2.2.2.2 SEPARATE COMBUSTION AIR SUPPLY

It is possible to provide the stove with a separate combustion air supply. The separate combustion air connection can be connected to the rear of the unit or to the bottom of the unit. The connecting piece is pre-assembled and the cover panels should be opened up as necessary. If a pipe connection is attached to the combustion air coupling, the combustion air can be drawn into the stove from outside or from other rooms such as the basement. When connecting the stove to a combustion air pipe, the requirements of TROL (technical rules), DIN 18896, etc. should be observed and applied.

In particular, care should be taken that the dimensions of the pipes are adequate. If using a swivel connector, a permanently flexible connection must be made. The rotating action must not be restricted.

Combustion air intakes and pipes must not be obstructed or closed unless special safety devices are fitted to ensure that the stove can only be operated when the closing system is open. The cross-section must **not** be reduced by means of an obstructor or grille. This measure is not necessary with balanced flue systems. If the combustion air pipe has to be routed out of the building, a shut-off device must be fitted. The position of the shut-off device must be obvious from the outside of the connecting pipe. In this design version the pipe should be insulated, as condensate may form. Also, when fitting the pipe it should be ensured that no water or other substances can enter the stove and that any condensate can drain away. According to the relevant provisions, combustion air ducts that bridge firewalls in buildings with more than two full storeys must be constructed such that fire and smoke cannot spread to other storeys or fire lobbies. The national and local fire precautions for the place of installation must be observed.

2.2.2.3 ROOM AIR SEALED

Room air sealed stoves have been developed for use in conjunction with home ventilation systems for a negative pressure range of up to 8 Pa in the room where the stove is installed and can be operated without any additional safety precautions. In room air sealed operation, the air supply for combustion must be led into the unit from an external source via airtight pipes, or via a balanced flue system. The combustion air duct must be permanently sealed tightly to the combustion air connecting piece (rear / side or bottom connection) on the stove.

When connecting a room air sealed stove to the combustion air pipe, the requirements of TROL (technical rules), DIN 18896, etc. should be observed and applied. In particular, ensure the dimensions are adequate.

The national and local fire precautions for the place of installation must be observed. Please ensure that the pipework is permanently leaktight.

2.2.3 FIRE PRECAUTIONS

General Information about Fire Precautions
Stoves generate heat and are subject to regulations and essential fire precautions. The fire precautions and minimum distances should be borne in mind when selecting the installation location for the stove. **A minimum distance of 5 cm from the rear wall must always be maintained. Greater distances should be allowed for reasons of safety and fire prevention in the case of walls that need to be protected or combustible building components.**

The table that follows (see page 12) shows the distances that must be maintained according to the type of stove and the nature of the walls on site. Use the drawings (**Figs. 17-21**) to help you determine your particular installation situation and note the distances that must be maintained.

Note the fire precautions when installing the stove. Ask your local chimney sweep for advice.

- Their structure and materials enable mounting walls **that are not combustible and not in need of protection** to be permanently exposed to temperatures above 85°C.
- **Mounting walls that are combustible or need to be protected** (e.g. stud partition construction) must be protected from temperatures above 85°C.

The mounting walls should be assessed before installing the stove. If the nature of the mounting wall cannot be identified with certainty, a specialist (such as the chimney sweep) should be consulted.

- According to DIN 4102-1, wallpaper used as a wall covering is not considered a combustible building component and does not require any special fire precautions. Please bear in mind that the structure underneath the wallpaper (e.g. stud partition construction) may very possibly be combustible or in need of protection, and appropriate precautions should be taken.
- Please note that the minimum distances indicated from rear wall and side walls need to be adapted for rotating stoves.
- It is important to observe the minimum distance from the chimney connecting piece to combustible building components (refer to section „2.2.5 Connecting Piece“ on page 14).
- There must be no combustible objects within a radius of **50 cm** above the fireplace.

Floor coverings near the stove
Floors made from combustible materials in front of the firebox door must be protected by a covering of non-combustible materials. The covering should extend at least 50 cm in front of the stove and at least 30 cm at each side (**Figs. 17-21 C+D**) (measured from the firebox door or viewing pane).

There must be no combustible building components, furniture, curtains or decorations within the radiant area of the firebox door or viewing pane. That distance can be reduced to 400 mm if a fire screen ventilated on both sides is placed between the fireplace and any combustible objects.

Minimum distances from nearby building components
The distances indicated in the table (see page 12) must be observed, according to your stove's window arrangement (see sketches below) and the nature of the mounting walls.

Here,
- Distance A is the minimum distance from the side wall of the stove to the mounting wall
- Distance B is the minimum distance from the rear wall of the stove to the mounting wall
- Distance C is the radiant area in front of the stove window(s).

Special note regarding the minimum distance at the side

The minimum side distance (**Fig. 15 (A)**) describes the minimum distance from the stove to the side mounting wall. It applies from the rear mounting wall to the edge of the radiant area (E) of the front window.

In the case of stoves with a curved front window or wide radiant area, the minimum distance from the wall (A) must be adjusted by the extended radiant area.

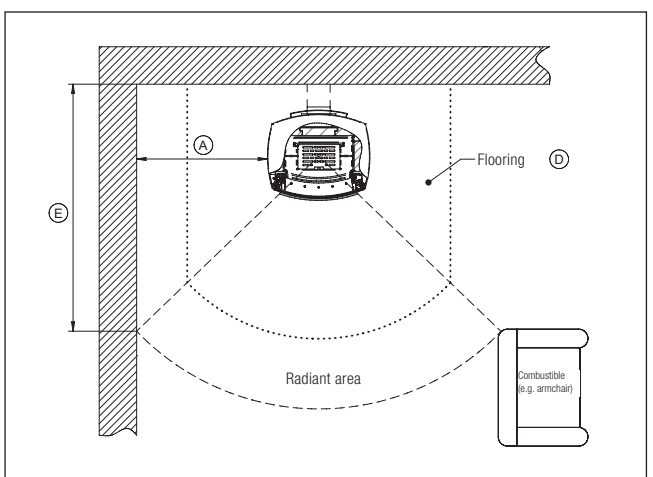


Fig 15

Determining the radiant area

To establish the radiant area of the stove, place a measuring aid (folding rule or tape measure) against the front window and, continuing past the side door pillar, gauge the centre of the stove (**Fig. 16**). Within the resulting angle and side distance A1 there must be no combustible building components or objects not needing protection from heat.

Before your stove is lit for the first time it must undergo acceptance by the local chimney sweep. He can also advise you on the installation conditions before your stove is fitted and give you instructions on the correct installation of your stove.

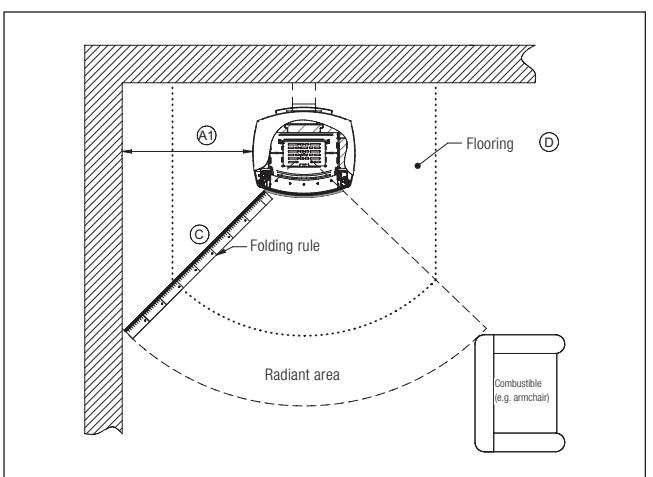
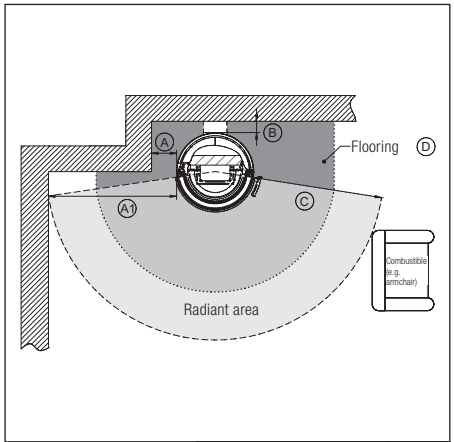


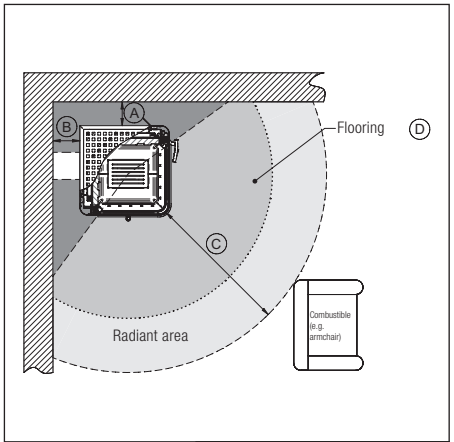
Fig. 16

Stove	Distance from side wall		Distance from rear wall		Distance within radiant area of window(s)		Dimensions of fireproof flooring	
	A (cm)		B (cm)		C (cm)		D (cm)	
	Combustible	Protection not needed	Combustible	Protection not needed	Combustible	Protection not needed	Length × width	Radius (of round floor covering)
Stovo								
Stovo S	31	20	16	5	100	80	50 x 30	50
Stovo M	31	20	16	5	100	80	50 x 30	50
Stovo L	56	25	13	5	100	80	50 x 30	50
Sino								
Sino L	10	10	8	5	80	80	50 x 30	50
Senso								
Senso S / Senso S RLU	47	20	10*	5	90	80	50 x 30	50
Senso M H_2O	10	10	10	5	80	80	50 x 30	50
Senso L	47	20	10	5	110	80	50 x 30	50
Passo								
Passo XS	15	15	5	5	80	80	50 x 30	50
Passo S	10	10	10	5	80	80	50 x 30	50
Passo M	25	20	10	5	80	80	50 x 30	50
Passo L	10	10	10	5	80	80	50 x 30	50
Trias								
Trias L	10	10	13	5	80	80	50 x 30	50
Piko								
Piko S / Piko S RLU	10	10	10	5	80	80	50 x 30	50
Piko M / Piko M RLU	10	10	10	5	80	80	50 x 30	50
Piko L / Piko L RLU	10	10	10	5	80	80	50 x 30	50
Piko H_2O	10	10	10	5	80	80	50 x 30	50
Cubo								
Cubo S / Cubo S RLU	10	10	10	5	80	80	50 x 30	50
Cubo M / Cubo M RLU	10	10	10	5	80	80	50 x 30	50
Cubo L / Cubo L RLU	10	10	10	5	80	80	50 x 30	50
Piu								
Piu L	15	15	15	5	80	80	50 x 30	50

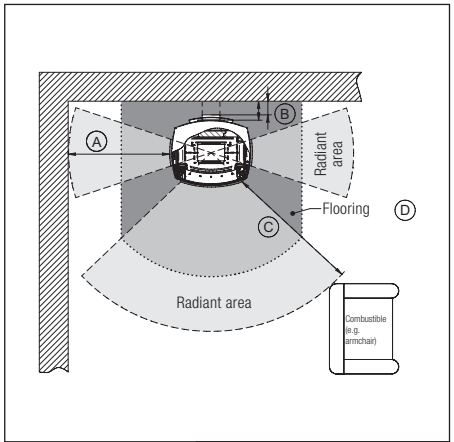
* The distance applies only in conjunction with a fire screen on the top plate, mounted behind the vertical flue gas pipe.



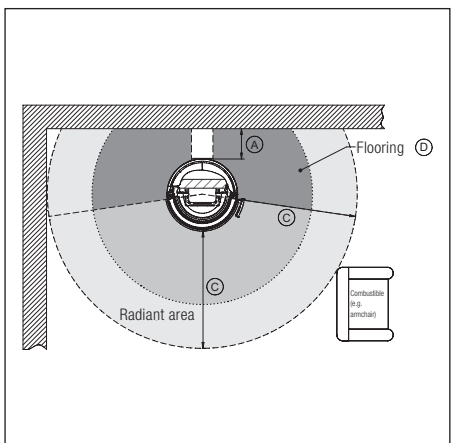
Wide radiant area | Fig. 17



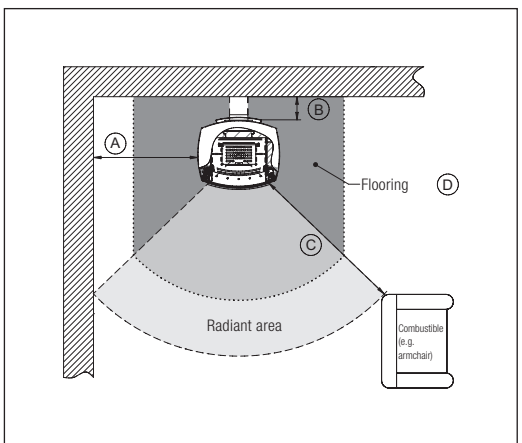
Corner window | Fig. 18



Front and side windows | Fig. 19



Front window, rotating | Fig. 20



Front window, straight | Fig. 21

2.2.4 SHUT-OFF DEVICE

Flue systems should be constructed in accordance with the Technical Rules of the Stove and Hot Air Heating System Trade (TROL). It is permissible for stoves to have a shut-off device in the flue system. This device must not interfere with inspection and cleaning of connecting pieces and it must not be of self-closing design. The status of the shut-off device must be obvious from the outside, e.g. from the position of the control handle. Such devices may only be fitted in the flue gas manifold, flue gas stack or connecting piece.

2.2.5 CONNECTING PIECE

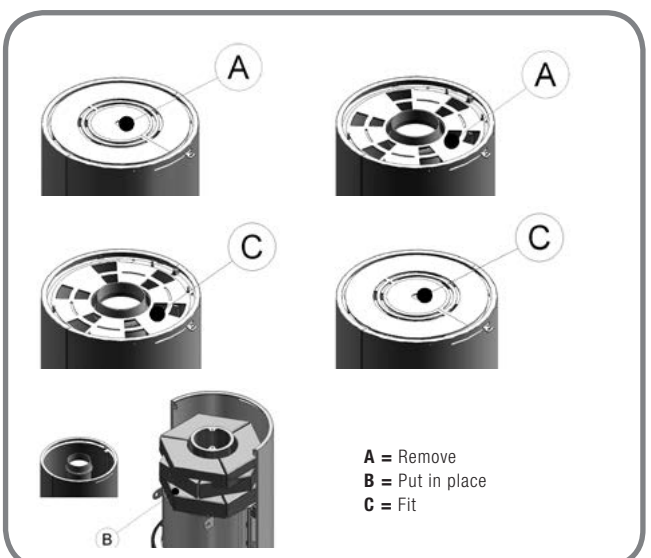
Your stove is connected to the chimney by 150 mm / 160 mm diameter connecting pieces made from steel sheet at least 2 mm thick. These must comply with DIN 1298 or DIN EN 1856-2 and they must be connected to the chimney in accordance with DIN 18160 or the regulations that apply in the country concerned. It is important to ensure that the flue gas pipe takes the shortest possible route upwards towards the chimney. The number of bends in the flue gas pipe should be kept to a minimum. The stability of the flue gas pipe must be ensured. If necessary, it should be fastened in place with clips. If the flue gas pipe passes through a combustible wall or if there are combustible building components nearby, the pipe should be insulated in accordance with the regulations. The connecting piping must always be installed in such a way that it can be cleaned at any time. This should be ensured by providing an appropriate number of cleaning apertures. If the stove is designed to rotate, the connecting piping should be installed in such a way that the fastening is not compromised. The flue gas pipe must not turn when the stove turns. Depending on the information provided by the manufacturer, the minimum distance from the chimney connecting piece to combustible building components may increase the distance between the stove and combustible building components. The minimum distances from combustible components stated in this Manual refer to the stove itself, and should be adapted if necessary (refer to section „2.2.3 Fire Precautions“ on page 10).

2.2.6 SWIVEL CONNECTOR

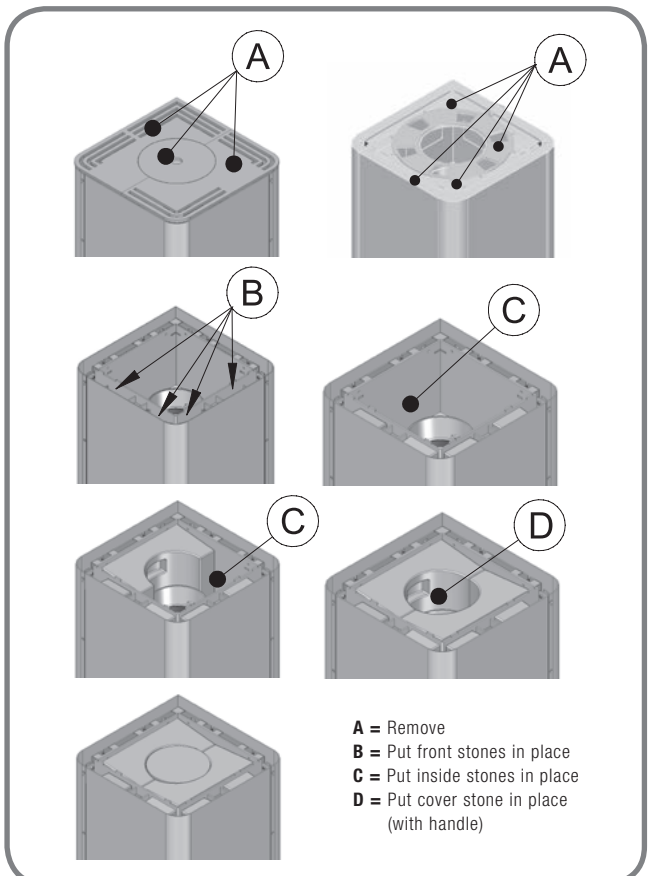
A swivel connector can only be fitted in the case of a top flue gas connection, and must be specified at the time of ordering. The stove can thus be rotated 120°/180°, i.e. 60°/90° to the left and the same to the right (section „3.3 Functioning of Swivel Connector“ on page 21).

2.2.7 FITTING THE STORAGE STONES – PASSO M

For weight reasons, the storage stones are assembled on site. To fit the storage stones, first remove the cover and the heat output control panel. Then place the storage stones in position as shown.



FITTING THE STORAGE STONES (CUBO M / PIKO M WITH WOOD STORAGE COMPARTMENT)



2.2.8 INSTALLING THE WATER-BEARING COMPONENTS OF THE SENSO M H_2O / PIKO H_2O

Installation of the water-bearing parts of the system, including fitting the necessary safety devices, temperature sensors and similar components, should always be carried out by a specialist contractor. The SENSO M H_2O / PIKO H_2O should be installed so that all water-bearing components are always accessible and can be inspected at any time.

The stove and all associated thermowells, connections, structural parts and piping must be hydraulic pressure tested and checked for leaks before commissioning.

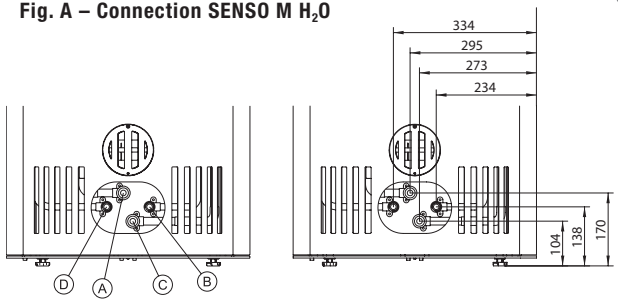
2.2.8.1 SENSO M H_2O / PIKO H_2O CONNECTIONS

The connections are located on the rear/inside (SENSO M H_2O) and on the underside (PIKO H_2O) (see **Figs. A** and **B**).

The connections are fitted with protective caps for transport. These should be removed during installation. The connections are clearly labelled and should not be used other than as indicated. In particular, the integral safety device (safety heat exchanger) should not be used to heat water.

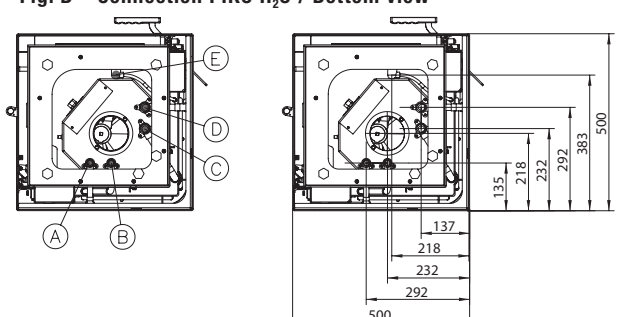
To facilitate installation of piping, etc., when making a connection through the floor, an installation template can be downloaded from the dealer login section of our home page at www.spartherm.com. **The installation template is only valid in conjunction with the Flex connection kit.** Alternatively, we can supply a 1:1 scale installation template on request. The Flex connection kit can be ordered from us for straightforward, speedy connection of the pipework through the floor and the internal connections.

Fig. A – Connection SENSO M H_2O



A = Return ¾"
B = Thermal discharge device inlet ½"
C = Flow ¾"
D = Thermal discharge device drain ½"

Fig. B – Connection PIKO H_2O / Bottom view



A = Safety heat exchanger 'drain' ½" IG
B = Safety heat exchanger 'inlet' ½" IG
C = Return ¾" IG
D = Flow ¾" IG
E = Vent valve ⅜"

2.2.8.2 GENERAL REQUIREMENTS FOR INSTALLATION

The SENSO M H_2O / PIKO H_2O should only be installed in systems with a thermostatic safety device to DIN 4751 or DIN EN 12828. The connections to the heating system should always be made such that they can be detached (e.g. screwed connection).

A type-tested safety valve (coded H) with a threshold pressure of max. 3.0 bar should be fitted in the flow pipe immediately next to the SENSO M H_2O / PIKO H_2O. No shut-off devices may be integrated into the system between the safety valve and the SENSO M H_2O / PIKO H_2O as that could disable the safety valve. Also, all necessary safety devices should be integrated into the overall system in such a way that safe operation is ensured. A dedicated safety valve must be fitted even if another safety valve is present elsewhere in the overall system (note TRD 721).

The installation and operating instructions for the heating components / additional components included in the system must be read and observed when installing the stove.

2.2.8.3 THERMAL DISCHARGE SAFETY DEVICE

As the SENSO M H_2O / PIKO H_2O heating system cannot be quickly switched off automatically, the appliances must be fitted with a thermal discharge safety device according to DIN 4751 Part 2 or DIN EN 12828. A safety device (safety heat exchanger) to prevent overheating is integrated into the SENSO M H_2O / PIKO H_2O for this purpose. This safety device must not be used to heat water.

The thermal discharge safety device is not pre-assembled on the unit. It has been packed inside the fire chamber to protect it during transport and installation. It should be fitted to the labelled connection during installation. After that, the capillary and adapter should be screwed onto the thermal discharge safety device. This has been tested and approved for a minimum water throughput of 900 kg/h.

The following points should be noted during installation to ensure that the safety device will operate correctly.

- A flow pressure of min. 2 bar must be available at the cold water inlet. That pressure must be guaranteed at all times. It is not permissible to operate the device on a domestic water supply which is dependent on the mains pressure.
- A minimum water flow of approx. 900 kg/h must be ensured. It must not be possible to shut off this supply.

All safety-related components must be integrated into the system in such a way that their function and leaktightness can be checked at any time. The thermal discharge safety device water drain should be designed in such a way that it can be inspected at any time (e.g., via a drain with siphon trap).

The cold water pipe should be flushed through before first using the system. This will flush out any dirt that could interfere with the closing of the thermal discharge safety device. The instructions and information provided by the manufacturer of the thermal discharge safety device must be observed.

2.2.8.4 THERMAL PUMP CONTROL

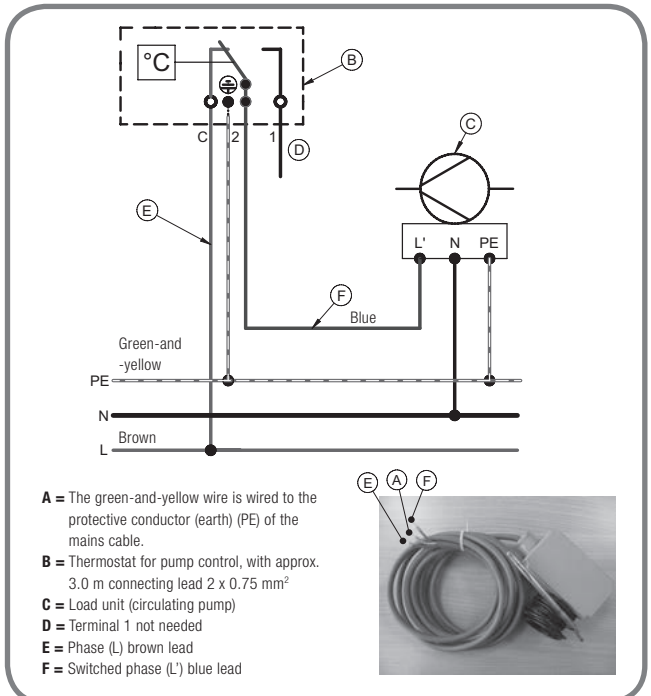
A thermostat is located in the bottom compartment for optimum control of the circulating pump. This ensures that the circulating pump will start up only when the water reaches a suitable temperature (> 60°C). It is possible for the pump to be controlled via the boiler control system or similar devices if it can be ensured that the the pump will switch on at a temperature of between 60°C and 68°C. The maximum contact rating of the thermal pump control is 250V~/10(2.5) A with an AC system.

The thermostat is factory-set to a temperature of approx. 62°C. That determines the temperature at which the load unit circulating pump switches on and off when the temperature in the water heat exchanger of the SENSO M H_2O / PIKO H_2O reaches or falls below the necessary level, respectively. As an option, the temperature can be adjusted by the installation contractor if circumstances demand. This is done either by adjusting the circular disc or by removing the lower, round cover (SENSO M H_2O – D=10 mm) or the top cover (PIKO H_2O), depending on the thermostat version. The temperature range can be altered after removing the cover.

Please note: At water temperatures below 60°C there is a greater risk of falling below the dew point. This can cause tarry soot to form. Also, more frequent cleaning becomes necessary. We therefore recommend that the switch-on temperatures should be set no lower than 60°C and no higher than 68°C.

2.2.8.5 ELECTRICAL CONNECTION

The entire electrical installation of the individual components of the heating system must be carried out by an authorised specialist contractor. All work must be carried out in accordance with VDE regulations (e.g., VDE 0105, VDE 0116, VDE 0100, etc.) and the local electricity supplier's technical connection conditions.



A = The green-and-yellow wire is wired to the protective conductor (earth) (PE) of the mains cable.
B = Thermostat for pump control, with approx. 3.0 m connecting lead 2 x 0.75 mm²
C = Load unit (circulating pump)
D = Terminal 1 not needed
E = Phase (L) brown lead
F = Switched phase (L') blue lead

The only work to be done on the SENSO M H_2O / PIKO H_2O is the electrical installation of the thermostat to the pump of the load unit („2.2.8.7 Load Unit“ on page 20) and to the mains (see illustration). The temperature-resistant connecting lead is approx. 3.0 m long and is already connected up inside the thermostat.

The functioning of the thermostatic switch should be checked using hot water (e.g. from a kettle) and a thermometer. The covering will need to be removed to do this.

2.2.8.6 CONNECTION TO A HEATING SYSTEM

Please note: The entire heating system should be planned in detail in accordance with the relevant rules of the art and the safety standards before installing the SENSO M H_2O / PIKO H_2O as part of a heating system. The planning consultant or installation contractor is responsible for the correct design of the pumps, fittings, piping and buffer tank used and the safety components. We recommend minimum nominal dimensions for heating pipes of:

Copper pipe, 22 x1.0 mm or steel pipe, 3/4".
For cold water pipes a nominal pipe size (copper pipe) of 15 × 1.0 and a flow pressure of 2.0 bar are sufficient for safe operation.

However, the pipe dimensions should be determined by the specialist firm, taking local conditions into account.

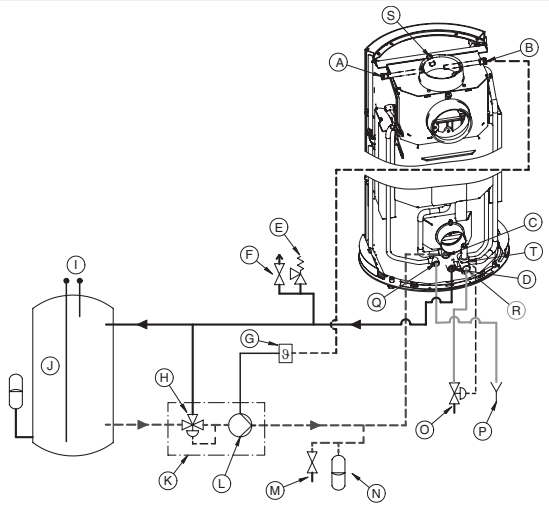
The SENSO M H_2O/ PIKO H_2O can be connected into a heating system as shown in the diagram on page 19.

A buffer tank must be included. The buffer tank volume should be calculated according to BImSchV 1. This specifies that 55 litres of buffer tank volume must be provided as a minimum per kW water output.

SENSO M H_2O
In the case of the Senso M H_2O that is: 5.0 kW x 55 litres/kW = 275 litres.

PIKO H_2O
In the case of the Piko H_2O that is: 4.6 kW x 55 litres/kW = 253 litres.

As these are not standard sizes available on the market, the next biggest buffer tank with a capacity of 300/500 litres should be selected.



A = Temperature sensor for thermal discharge safety device
B = Temperature sensor for thermostatic switch ½'' IG
C = Return ¾'' IG
D = Flow ¾'' IG
E = Safety valve 3 bar
F = Bleed valve
G = Pump thermostatic switch
H = Load unit
I = Connection to heating system
J = Buffer tank
K = Load unit
L = Circulating pump
M = Filling and emptying fitting
N = Expansion tank
O = Thermal discharge safety device
P = Open drain, e.g. into wastewater system
Q = Safety heat exchanger 'drain' ½'' IG
R = Safety heat exchanger 'inlet' ½'' IG
S = Bleed valve ⅜"
T = Thermal discharge safety device

The following sample calculation may be helpful for dimensioning the buffer tank.

The following assumptions have been made:

Senso M H_2O	**Piko H_2O**
• Buffer tank size: 750 litres (approx. 750 kg water) • Initial water temperature in buffer tank: 30°C • Final water temperature in buffer tank: 60°C • Temperature differential 30°C (corresponds to 30 K) • No heat is drawn from the tank while it is being heated by the SENSO M H_2O	• Buffer tank size: 500 litres (500 kg water) • Initial water temperature in buffer tank: 40 °C • Final water temperature in buffer tank: 70 °C • Temperature differential 30°C (corresponds to 30 K) • No heat is drawn from the tank while it is being heated by the PIKO H_2O
$Q = cp \times m \times \Delta t$	**$Q = cp \times m \times \Delta t$**
$Q = 4{,}187 \frac{kJ}{kg \times K} \times 750kg \times 30K$	**$Q = 4{,}187 \frac{kJ}{kg \times K} \times 500kg \times 30K$**
$Q = 94207\ kJ$	**$Q = 62805\ kJ$**

So: to heat 750 litres of water in a tank from an assumed 30°C to 60°C requires a theoretical heat quantity of 94207 kJ (disregarding any losses or heat drawn within the system). That heat quantity corresponds to approx. 26.2 kWh.

Assuming that the SENSO M H_2O has an average output of approx. 5.0 kW it will take about 5¼ hours to heat up the tankful of 750 litres of water. This calculation is based on heating up the entire volume in the tank uniformly.

So: to heat 500 litres of water in a tank from an assumed 40°C to 70°C requires a theoretical heat quantity of 62805 kJ (disregarding any losses or heat drawn within the system). That heat quantity corresponds to approx. 17.5 kWh.

Assuming that the PIKO H_2O has an average output of approx. 4.6 kW it will take about 3.8 hours to heat up the tankful of 500 litres of water. This calculation is based on heating up the entire volume in the tank uniformly.

In an efficiently designed heating system the hot water is stored in layers in the buffer tank, e.g. in a stratified storage system. That way, hot water is available after heating up for only a short time and heat is available for use shortly after circulation starts in the SENSO M H_2O / PIKO H_2O. Only surplus energy not needed for heating is then stored in the buffer tank.

On very cold winter days the SENSO M H_2O / PIKO H_2O may be in operation for about 12 hours. The quantity of heat thus produced in the water system then corresponds theoretically to 60 kWh / 55 kWh. That quantity of heat would be sufficient to heat approx. 1,700 litres (from 30°C to 60°C) / 1,575 litres (from 40°C to 70°C). As a rule, though, heat is always drawn off in such a situation and so overheating of the buffer tank (> 90°C) is not likely to occur, even at lower volumes.

2.2.8.7 LOAD UNIT

The SENSO M H_2O / PIKO H_2O must be operated with a load unit. When in operation, the flow temperature should be higher than 65°C and the return temperature should be at least 60°C. To ensure that these temperatures are reached, a circulating pump should be installed so that it only starts up when a temperature of 62°C has been reached. A controlled load unit should always be fitted to reduce the risk of dropping below the dew point.

We will not be held liable and we offer no warranty in respect of any operating problems (sooting, deposits, etc.) or corrosion damage to the water heat exchanger or the chimney, etc., due to the lack of or the incorrect functioning of a load unit.

3. OPERATING INSTRUCTIONS

Read these Installation and Operating Instructions through carefully before installing or operating your stove. Make sure all objects are removed from the fire chamber (except for the fire chamber lining). Ask your specialist dealer to explain to you how the stove works and show you how to operate it. National and European standards and local regulations must be observed when operating this fireplace.

3.1. GENERAL OPERATING INFORMATION

- Young children, the elderly or the frail: as with all heating appliances, a guard should be fitted to protect the above persons because both the glass door and the stove cover panels can become very hot in use. **Risk of burns!** Never leave such individuals unsupervised near a stove when it is lit or when the fire has just gone out. Please make them aware of this hazard.
- Never place flammable objects on the exposed surfaces or covering

parts of the stove. Never dry washing on the stove. Racks for drying washing should always be placed outside the radiant area of the stove.

- Burning fuel releases thermal energy which heats up the various parts of the stove, such as the surfaces, the door, the door handle and control handle, the viewing pane, the flue ducts, etc. These parts can get very hot. Always take appropriate precautions before touching or operating hot stove parts (e.g. put on the protective glove).
- **The protective glove supplied is designed only for protection from heat when operating the control handle and the cold hand. The glove is not fireproof.**
- The stove must always be operated with the firebox door closed. The door should always be kept closed, even when the stove is cold. The only times the door should be opened are when lighting the stove, when putting on more wood or when cleaning the stove.
- Do not modify the stove in any way. In particular, no parts that have not been expressly approved by SPARTHERM shall be placed in the fire chamber or in the flue gas or combustion air paths. Any modification to the fireplace without such express approval will render the warranty and operating permit void.
- Extractor hoods, ventilators, etc. used at the same time as fireplaces in the same room or in an adjoining room may interfere with the correct functioning of the stove (smoke may even escape into the living room). Such ventilation systems should never be operated at the same time as the stove unless appropriate precautions are taken. („2.2.2.3 Room Air Sealed“ on page 9).
- If several fireplaces are operated in one room or in adjoining rooms, it is particularly important to ensure an adequate combustion air supply for all of them.
- This stove has been designed for intermittent use. It is not possible to achieve continuous operation, even by shutting off the air supply, and attempting this is not permissible. To prolong the heating period, more wood should be added as and when necessary.
- Do not place any combustible materials in the lower compartment of the stove cover.

3.2 FIRE PRECAUTIONS

„2.2.3 Fire Precautions“ on page 10.

3.3 FUNCTIONING OF SWIVEL CONNECTOR

A swivel connector can only be fitted in the case of a top flue gas connection, and must be specified at the time of ordering. The connector enables the stove to be rotated 180°, i.e. 90° to the left and 90° to the right. (SINO L 120° rotation, i.e., 60° to the right and 60° to the left).

To rotate the SENSO S stove, for example, slacken off the adjusting bolt. This is located on the bottom panel. The stove can now be rotated to the desired position. Then tighten up the adjusting bolt again to lock the stove in position.

On some models, the shipping brace needs to be removed first (**Fig. 2**). This is located at the bottom rear of the stove. To remove the shipping brace, undo the socket head cap screw with a size 5 Allen key (supplied with the unit) (**Fig. 2**).

Then remove the shipping brace (**Fig. 3**).
See next page.

Fig. 1

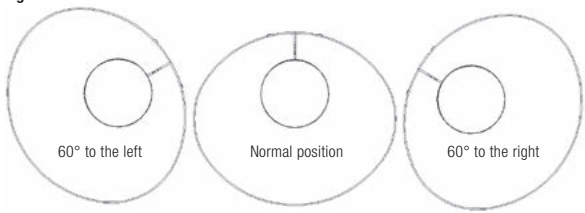


Fig. 2

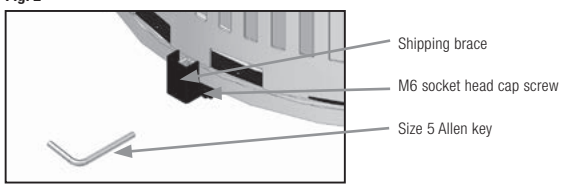


Fig. 3

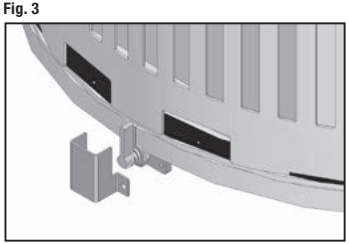
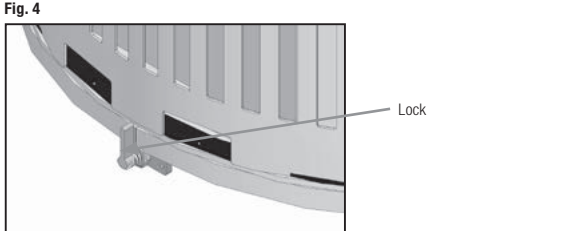


Fig. 4

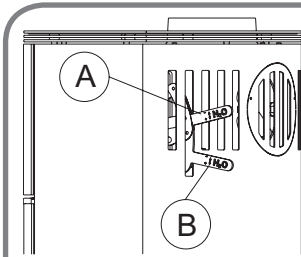


3.4 RATING PLATE

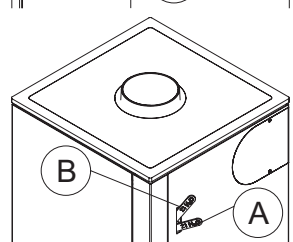
The rating plate can be found on the rear of the stove or underneath the ash box or ash pan. The rating plate contains technical data and information. The rating plate must not be removed, as it is proof that the stove has been tested and it is needed for acceptance and for the annual inspections by the chimney sweep.

3.5 OPERATING THE SENSO M H_2O / PIKO H_2O WATER HEAT EXCHANGER

The water heat exchanger is operated via the lever at the rear right-hand side (see illustration). This switches between the lighting-up position and the combustion position. The lever does not have an intermediate position.



SENSO M H_2O



PIKO H_2O

A = Water heat exchanger, low output
B = Water heat exchanger, maximum output

SENSO M H_2O
Lighting up (initial phase): The lever is right at the top. The flue gases are not routed through the SENSO M H_2O's heat exchanger, to encourage the chimney to start drawing rapidly and effectively.

Combustion position: The lever has been pushed all the way down. All the flue gas will now be routed through the SENSO M H_2O's heat exchanger. Wait for the stove to heat up fully, the fuel to have burnt and embers to have formed before moving the lever to this position. That normally takes about 15-20 minutes.

PIKO H_2O
Lighting up (initial phase): The lever is at the very bottom. The flue gas bypasses the PIKO H_2O's heat exchanger. That allows the chimney draught to develop as quickly and effectively as possible.

Combustion position: The lever has been pushed right to the top. All the flue gas will now be routed through the PIKO H_2O's heat exchanger. Wait for the stove to heat up fully, the fuel to have burnt and embers to have formed before moving the lever to this position. That normally takes about 15-20 minutes.

To keep the SENSO M H_2O / PIKO H_2O operating efficiently, be sure to add more wood in time to prevent the flue gas temperature dropping too low.

4. COMBUSTION

4.1 LIGHTING THE STOVE FOR THE FIRST TIME

The stove must be assembled and installed by a specialist contractor. Commissioning must always be carried out by an expert from the installation firm. The owner/operator of the system must be handed a certificate stating that the system has been correctly installed and all control and safety components have been correctly set and are operating correctly (see „10. Commissioning Record“ on page 44). Only a moderate fire should be lit when using the stove for the first time. This avoids cracking the fire chamber lining (the lining may still contain residual moisture at commissioning). Slowly increase the heat output the next 3 to 5 times the stove is lit, up to about 30 % above the nominal output to allow the anti-corrosion coating on the surfaces of the stove to burn in correctly. The colour may mellow slightly during this process. Do not place any objects on the stove and do not touch the stove. An unpleasant odour may be given off during this process (sometimes accompanied by a small amount of smoke). It is therefore important to ensure that the room is well ventilated during the burning-in process. Open all the doors and windows to let fresh air in.

Commissioning the SENSO M H_2O / PIKO H_2O
Commissioning must not take place until all the necessary components have been connected up, all necessary safety devices have been integrated and are operational, the water heat exchanger has been filled and the system has been vented. It is not permissible to operate the system without water, when only partly filled or with safety devices that are not operational. It may be necessary to vent the water heat exchanger several times at commissioning.

The operator must be given detailed instructions on the operation, functioning and maintenance of the entire system including all additional components. The measures necessary to keep the system operating safely must also be explained to the operator. Operator instruction must be documented

in the commissioning record (see „10. Commissioning Record“ on page 44). The Installation and Operating Manual should be kept in an easily accessible place near the PIKO H_2O.

Also, dirty condensate may leak from the fire chamber lining and may soil or damage the floor underneath the stove. An absorbent material should therefore be placed under the stove the first few times it is used, until there is no more condensate leakage.

Before commissioning it is important to check whether any objects are still inside the fire chamber or in the ash pan. These should be removed.

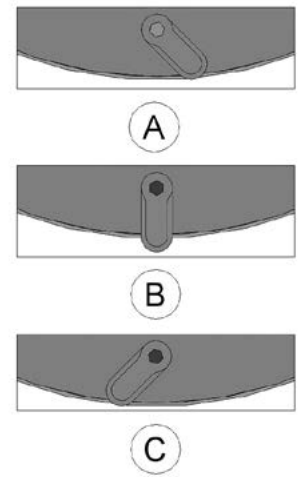
Please note that slight expansion or contraction noises may be heard as the stove heats up or cools down. These are perfectly normal and they are caused by material expanding at high temperatures.

4.1.1 COMBUSTION AIR CONTROL

The combustion air supply is infinitely adjustable with the aid of the air adjustment lever, which is located below the door (see illustration). The lever must be operated with the firebox door closed.

Air supply open (A): When lighting the stove or when adding more wood, move the lever all the way to the right. That delivers the maximum combustion air flow to the fire chamber as primary air and as secondary air (see Figure A).

Restricted combustion (B): Adjustment lever roughly in the middle position. The primary air is now closed to prevent too much air being delivered to the fire and the wood burning away too quickly. The secondary air flows over the ceramic glass pane via the airwash, which minimises sooting-up of the glass as far as possible. This is the normal position during combustion. The exact position depends on local conditions and can be adjusted by the operator according to how the stove is burning (see Figure B).



Air supply closed (C): Adjustment lever at the far left. In this position no combustion air is supplied to the fire chamber of the stove. Wait for all the fuel to burn away before closing off the air supply. The air supply should always be closed when the stove is not in use (see Figure C).

4.2 LIGHTING UP / BURNING

Lighting your stove is very easy if you follow the instructions below.

1. Ensure the firebox lining is correctly fitted before lighting the stove.
2. Switch off all extractor fans (kitchen, bathroom, toilet, etc.) That prevents a partial vacuum occurring in the room where the stove is installed and possible leakage of flue gases from the stove into the room. Check the combustion air supply (open the flap if necessary).
3. Move the combustion air adjustment lever to the lighting position and open the firebox door (it swivels out).
4. Build a pile of split kindling (soft wood is best) in the middle of the fire chamber (**Picture 1**).

5. Place some standard firelighters underneath the pile to help light the fire. (Paper is not recommended as it burns away too quickly and causes flying ash).
6. Never use spirit, lighter fuel, oil or any other highly flammable liquids.
7. Now light the fire by lighting the firelighters, and leave the firebox door open about 3 to 5 cm. The fire should soon start burning strongly and brightly.
8. Once the kindling is well alight you can add some small hardwood split logs or larger softwood logs, piling them up on top (**Picture 2**).
9. Close the door once the logs are burning well. The air adjustment lever remains in the far right position (air supply open) and it should stay in that position for another 10 to 20 minutes to get the stove up to operating temperature.
10. More information about how much wood to put on the fire can be found in section „4.2.2 Hourly Wood Consumption“ on page 26.
11. Once all the wood has fully burned away, more wood can be added as required (hardwood is ideal) (**Picture 3**).
12. Move the air adjustment lever to roughly the middle position, according to the weather conditions at the time. Judging how far to move it depends on experience and current conditions at the place of use.
13. Do not wrench the door open, as if you do that there is a risk that a sudden drop in pressure will allow flue gas to escape into the living room. Open the door slowly to begin with, just a crack.
14. By waiting till the ember stage before adding more wood you avoid the risk of smoke escaping when the door is opened.
15. Avoid the temptation to put more than the recommended amount of wood on the fire.
16. If your chimney is drawing too strongly, the fire will blaze up even with only a minimal secondary air supply. Move the air adjustment lever slightly to find the best position for controlled combustion. The farther you move the adjustment lever towards the ‘air supply closed’ position, the less air is delivered to the fire chamber. Take care not to shut off the air supply too much, thus starving the fire of air (refer to section „4.3 Controlling the Heat Output“ on page 26).

Picture 1

Picture 2

Picture 3

Picture 4

4.2.1 ADDING MORE WOOD

Wait for the wood in the firebox to burn down to embers before adding more wood.

1. Move the air adjustment lever to the fully open position.
2. Open the firebox door very slowly (use the protective glove) to avoid turbulence which can encourage smoke to leak out.
3. Place split logs on top of the embers (bark uppermost, cut surface to the side). Check that the air supply is open.
4. Close the firebox door (use the protective glove).
5. Leave the air adjustment lever fully open for 2 to 5 minutes. Wait for all the new wood to catch light before altering the air adjustment lever position again. Then move the air adjustment lever to roughly the middle position.

The fire goes out when all the wood has been burned away and there is no possibility of the fire continuing to smoulder or incomplete combustion (**Picture 4**). The air supply can now be closed. Always leave the air adjustment lever in the closed position when the stove is not in use.

4.2.2 HOURLY WOOD CONSUMPTION

To avoid damage from overheating, such as discolouration of the steel, deformation, etc. and to keep your stove operating efficiently even after years of use, it is essential to stoke the stove correctly. To avoid the risk of overheating, do not exceed the maximum heat output.

Please refer to the Technical Data for the recommended hourly wood consumption. The individual pieces of wood should be about 25 cm in circumference.

Please note: Increasing the wood feed beyond this amount may result in overheating and damage to the stove. Wood pellets have an appreciably higher heat output than hard wood. The hourly feed when burning wood pellets should therefore be 20 % lower than when burning split logs. The warranty will be rendered void in cases of damage due to overheating (excessive hourly wood consumption).

4.3 CONTROLLING THE HEAT OUTPUT

The heat output is controlled via the amount of fuel placed in the stove. Do not attempt to slow down combustion by drastically reducing the air supply. When burning wood, the result is incomplete combustion and thus, wasted fuel and unnecessary environmental pollution, as wood gives off gases even when smouldering. That also increases the soot deposits on the viewing panes. What is more, there is the risk of deflagration (explosive ignition of the flue gases). Always ensure that the firebox door is tightly closed during combustion to avoid accelerating combustion by an uncontrolled air supply. Your stove's output also depends on the chimney draught. The draught may be affected by factors like the cross-section of the chimney or weather conditions (strong winds, etc.).

4.4 ROOM HEATING CAPACITY

The room heating capacity was previously quoted according to DIN standard 18893 (last issued August 1987) and is thus no longer relevant to modern post-1990 homes. However, the old room heating capacity value may still be of interest as a comparative value or for use in the case of older structures pre-dating the 1977 thermal insulation standard („9. Technical data“ on page 40).

A detailed explanation of ‘favourable’, ‘less favourable’ and ‘unfavourable’ can be found in DIN standard 18893. Simply put, ‘favourable’ describes a situation where the room has only one external wall and otherwise mainly adjoins heated internal rooms, whereas ‘unfavourable’ refers to a room with two external walls and adjoining unheated rooms.

The values indicated above refer to buildings that do not yet meet the requirements of the 1977 Thermal Insulation Ordinance and are therefore a simplification valid for rooms up to 200 m^3 in size. DIN standard 18893 recommended a calculation according to DIN 4701 for rooms larger than 200 m^3.

Nowadays, an estimate according to TROL is preferable or, in particular, the calculation should be based on DIN 12831.

4.5 HEATING IN THE TRANSITIONAL PERIOD / UNFAVOURABLE WEATHER CONDITIONS

In the transitional period, when the outside temperature is still quite high (above approx. 15 °C) or during unfavourable weather conditions (down winds, etc.), disruption to the chimney draught may occur due to sudden rises in temperature, with the result that the flue gases are not completely extracted. In these circumstances a smaller amount of fuel should be placed in the stove and the air adjustment lever should be moved to the maximum position („4.1.1 Combustion Air Control“ on page 24). The fuel in the stove will then burn away faster (with more flames). This will help to stabilise the chimney draught. To avoid resistance in the firebed, it should be carefully raked at frequent intervals to remove the ash. The air supply can be reduced slightly (roughly the middle position) when the chimney draught has stabilised.

5. FUEL

In an informative brochure the Wald in Not (Forest in Peril) foundation puts this very well: “Wood does not run up debts with nature. Wood is stored solar energy. Sunlight, water and carbon dioxide are the building blocks that go to make wood. During the lifetime of the tree, sunlight is chemically captured. Solar energy is stored in lignin and cellulose. When the wood is burned, that energy is released again.” For further information visit the www.wald-in-not.de website.

Only fuel meeting the requirements of BImSchV Stage 1 may be burned in stoves. The only permissible fuels for the stove are logs (recommended residual moisture 20 % or less) or wood briquettes complying with DIN 51731. Incidentally, a log moisture meter is not expensive and it soon pays for itself.

No other types of fuel should be used.
It is therefore not permissible to burn the following:

- Varnished or plastic-coated wood
- Chipboard or wood treated with timber preservatives
- Wood from Euro Pool pallets
- Rubbish, household waste, old clothes
- Paper, paper briquettes, cardboard
- Coal, coal briquettes, brown coal
- Wet wood (residual moisture content over 25 %)
- Plastic or foam of any kind
- Solid or liquid non-timber materials

Burning these and other unsuitable materials in your stove is prohibited. The approved fuels are logs or wood briquettes in accordance with DIN 51731. Burning any other materials may cause toxic flue gases to form and can interfere with the combustion process, with a possible risk of deflagration.

The warranty will be rendered void if any prohibited materials are burned in the stove.

Use small pieces of wood to light the fire. Only split wood no thicker than about 8 cm at its thickest point should be used as firewood. The ideal length is approx. 25 cm. Avoid placing too much wood on the fire at a time. 'Little and often' is the best way.

5.1 CO_2 NEUTRALITY

Wood only gives off the same amount of carbon dioxide as the tree captured in its lifetime. It makes no difference whether the wood is burned or rots away in the forest – the amount of carbon dioxide released is always the same. A closed, natural carbon loop is created.

In other words: burning wood maintains the balance of nature. Germany has introduced legislation to promote sustainable forest management. The result is an increase in the total quantity of wood available, so that firewood consumption does not outstrip timber regeneration.

5.1.1 STORING WOOD

It is usually recommended to store firewood for about 2 to 3 years in a well-ventilated place protected from damp (e.g., under a roof overhang on the sheltered side of a building). In optimum storage conditions the wood moisture content drops below 25 % appreciably faster.

You should therefore split your logs before storing them, as the bark prevents moisture from escaping. Leave a gap of about a hand's width between the split logs to promote ventilation and allow the air to circulate freely and carry away the moisture from the wood. The log pile should be about 20-30cm clear of the ground. The logs should be protected from precipitation (rain or snow), which will raise the moisture level again. It is not advisable to store wood in a garage, under plastic sheeting or in a poorly ventilated cellar, as that prevents the moisture in the wood from escaping.

5.2 YOUR CONTRIBUTION TO ENVIRONMENTAL PROTECTION

Whether your stove burns in an environmentally friendly manner depends to a great extent on how it is operated and on the fuels used. The following tips will help you to operate your stove in an environmentally compatible way.

- Try to avoid burning resinous woods such as spruce, pine or fir. With these types of wood the viewing pane of your stove will soot up faster and more flying sparks will be produced. For safety reasons, therefore, you should use only wood from deciduous trees such as birch, beech, oak and fruit trees.
- Adapt the amount of wood burned to the heat requirement at the time.

Here's how to check that your stove is burning cleanly with low emissions:

- The ash should be white. A dark colour indicates charcoal residues and incomplete combustion.
- The flue gases leaving the chimney pot should be almost invisible (the less smoke, the more complete the combustion).
- Your stove's fire chamber lining should be light in colour after the fire has been burning, and not sooted up.

Note: The stove should not be used to incinerate waste. Also, this stove is designed for intermittent use. It is not possible to achieve continuous operation, even by shutting off the air supply, and attempting this is not permissible.

6. CLEANING AND MAINTENANCE

Always allow the stove to cool down completely before cleaning it. Please bear in mind that cleaning the stove may dirty the room and your clothing. We recommend that you use a plastic sheet or a dust-sheet to protect the area around the firebox door, and wear overalls to protect your clothes. All parts removed for cleaning must be replaced afterwards.

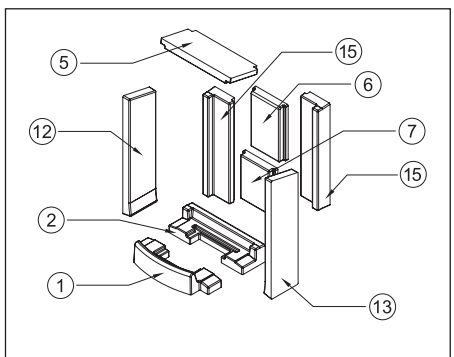
6.1 CLEANING THE FIRE CHAMBER / COVER PARTS

- The stove, the firebox, the flue gas manifold including the flue gas deflector, the combustion air supply and the connecting pieces to the chimney must be examined at regular intervals throughout the year, including during and after each heating season if necessary, and after the chimney has been cleaned, to check for any deposits and cleaned if necessary (consult your stove dealer or local chimney sweep). Any deposits should be removed using a hand brush and/or stove vacuum cleaner (available from specialist dealers). The chimney should be cleaned by a chimney sweep at regular intervals. The stove should also be inspected each year by a specialist.
- Flue gas deflector: Additional flue gas deflectors and convection pipes are located above the fire chamber and in the flue gas manifold. These components should be cleaned regularly. The flue gas deflectors may be removed for this purpose. To remove them, lift and twist and remove them through the firebox. Deposits on the deflectors and convection pipes can simply be brushed off with a hand brush.
- Ash removal: Your stove is designed to burn dry wood, which burns best in its own ash. If you nevertheless want to remove ash from the fire chamber:
- No ash pan: open the stove door and sweep out the ash on to a dustpan or shovel, or use a fireplace vacuum cleaner to clean out the fire chamber.
- With an ash pan: open the fire chamber door. Lift up the grate that sits on top of the ash pan and sweep the ash into the ash pan. Then open the lower stove cover panel to remove the ash pan. Hold the ash pan by the handle when removing. The ash can then simply be disposed of. After cleaning out the ash, push the ash pan back into place, close the stove cover panel and replace the grate. Then dispose of the ash in the correct manner.
- Please note that the embers can still be hot for as long as 24 hours or more after the fire has gone out.
- Cleaning the ceramic glass viewing pane: The viewing pane can easily be cleaned with standard stove glass cleaner, obtainable from your specialist dealer. Do not allow the fibreglass seals to become soaked with cleaning fluid. Then wipe over with a dry cloth (do not scour the glass).
- Enamelled surfaces and the outer casing can be cleaned with a damp cloth (do not use a microfibre cloth). There is no need to use a cleaning product.
- Glass surfaces can be cleaned with a standard glass cleaner and a soft cloth (do not use a microfibre cloth).
- Stainless steel surfaces can be cleaned using a standard stainless steel cleaner. Apply in the direction of the finish only.
- Natural stone surfaces can be cleaned with a damp cloth or a suitable standard cleaner.
- Ceramic surfaces can be cleaned with a damp cloth or a suitable standard cleaner.

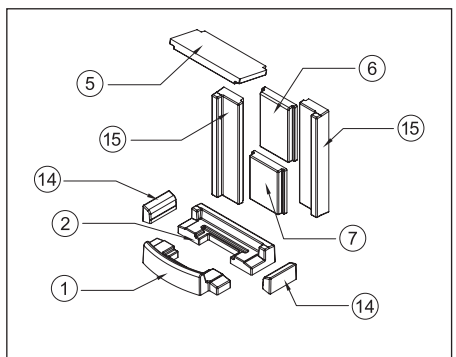
Regularly remove dust from above and below the stove during the heating season, as dust particles may burn or char. This can cause soot and dirt in the room where the stove is installed and on the furnishings in the room, or an unpleasant odour.

6.2 FIRE CHAMBER LINING

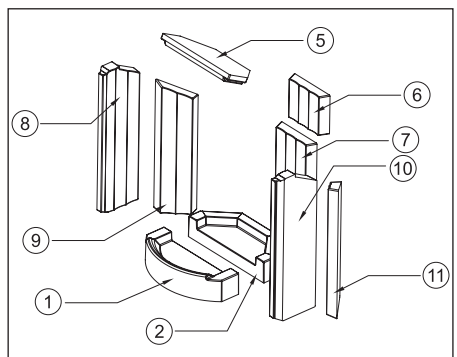
During the warming-up phase it is normal for the lining to be covered by a dark coating. Once the operating temperature is reached, this coating on the firebox lining will have burnt off. Cracks are not considered grounds for a justified complaint. The lining is subject to very high stresses. An expansion or contraction crack is not serious and is not a functional defect. However, any parts of the fire chamber lining that are broken and have moved out of position need to be replaced. If spare fireclay is needed, it can be ordered from your stove fitter, quoting the part number (see page 32).



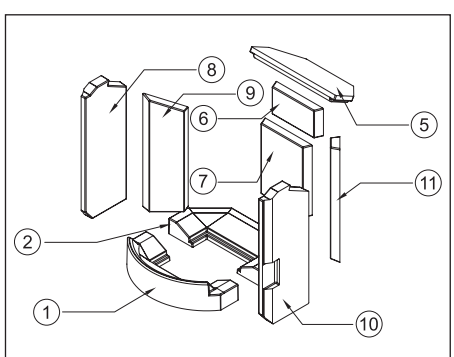
Stovo S, M



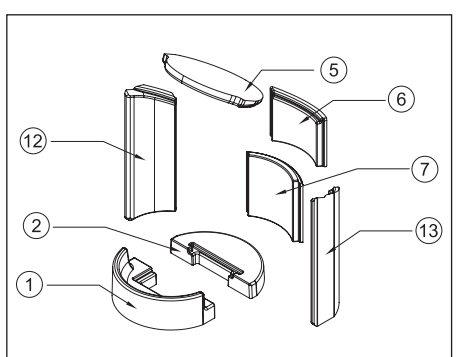
Stovo L



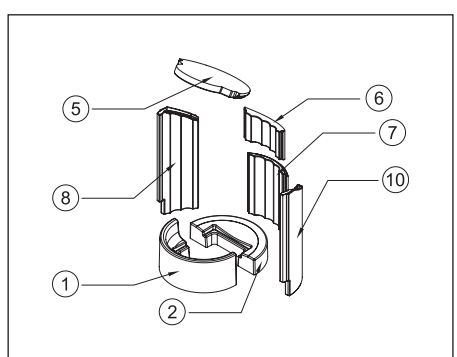
Senso S



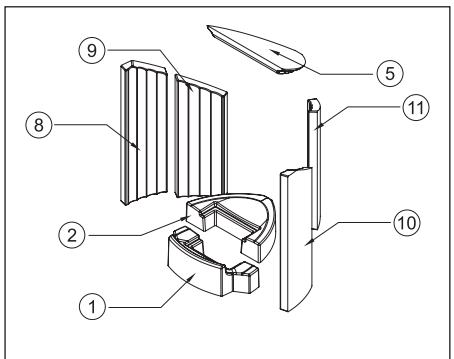
Sino L, Senso L, M H_2O



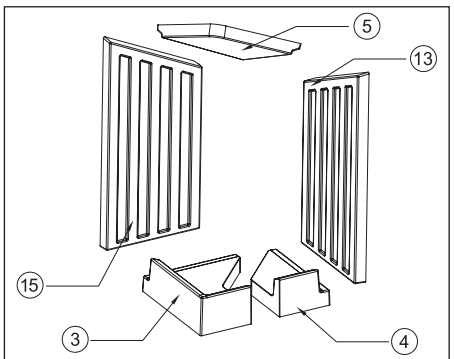
Passo XS



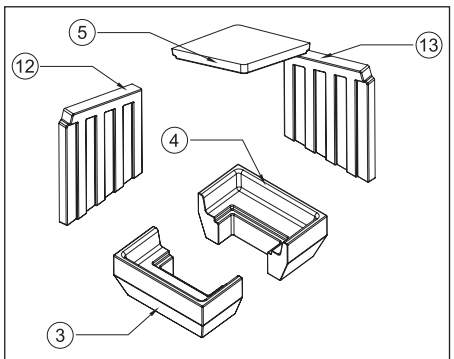
Passo S, M, L



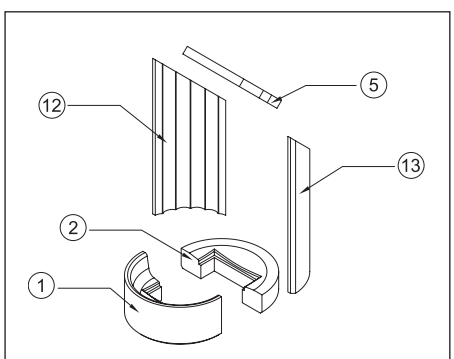
Trias



Cubo / Piko S, M, L



Piko H_2O



Piu L

PART NUMBERS FOR SPARE FIRECLAY

Pos.	Name	Stovo S, M	Stovo L	Senso S	Sino L / Senso L, M H_2O	Passo XS	Passo S, M, L	Trias	Cubo / Piko S, M, L	Piko H_2O	Piu L
Individual fireclay bricks											
1	Base brick, front	1018809	1018809	1015039	1012246	1019862	1012379	1012842	-	-	1012379
2	Base brick, rear	1018810	1018810	1015040	1012247	1019863	1012380	1012843	-	-	1012380
3	Base brick, left	-	-	-	-	-	-	-	1015034	1012634	-
4	Base brick, right	-	-	-	-	-	-	-	1015035	1012634	-
5	Baffle plate	1018816	1018816	1015047	1012254	1019870	1012385	1012848	1015038	1012260	1012491
6	Rear wall brick, top	1018813	1018813	1015046	1012253	1019869	1012383	-	-	-	-
7	Rear wall brick, bottom	1018812	1018812	1015045	1012252	1019867	1012384	-	-	-	-
8	Side brick, left front	-	-	1015041	1012250	-	1012382	1012844	-	-	-
9	Side brick, left rear	-	-	1015043	1012248	-	-	1012845	-	-	-
10	Side brick, right front	-	-	1015042	1012251	-	1012381	1012846	-	-	-
11	Side brick, right rear	-	-	1015044	1012249	-	-	1012847	-	-	-
12	Side wall brick, left	1018814	-	-	-	1019864	-	-	-	1012258	1012489
13	Side wall brick, right	1018815	-	-	-	1019865	-	-	1015037	1012259	1012490
14	Edge brick	-	1018817	-	-	-	-	-	-	-	-
15	Rear wall brick	1018811	1018811	-	-	-	-	-	1015036	-	-
Complete fireclay set											
Complete fireclay set without baffle plate		1024757	1024758	1015105	1014338	1024759	1010170	1014339	1015104	1014517	1006203
Accessories											
Grate (small) 220/160 mm		1019059	1019059		1006404	1019059	1006404	1006404		1006404	1006404
Ash pan (small) 220/150 mm						-	1004809			1004806	1004809

6.3 CHIMNEY FIRE

When burning wood (especially wood from coniferous trees) sparks are often carried from the fireplace to the chimney. These sparks may set light to the layer of soot in the chimney. (This rarely happens if the chimney is cleaned regularly by a chimney sweep). The chimney then catches fire. Signs of a chimney fire are flames blazing from the chimney pot, quantities of flying sparks, a lot of smoke and noise and the flue jambs getting hotter and hotter. In the event of a chimney fire, it's important to act correctly. Immediately call the fire brigade on the emergency number. The chimney sweep should also be informed. Move all combustible objects away from the chimney area.

Note: Never try to put the fire out with water while waiting for the fire brigade to arrive. The temperatures in a chimney fire can reach as high as 1,300°C. Any water thrown on the fire would immediately turn into steam. A 10-litre bucket of water produces 17 cubic metres of steam. The tremendous pressure generated could split the chimney apart. After the chimney fire has burned out, a specialist should be called in to inspect the chimney for cracks and leaks and to make any necessary repairs.

6.4 MAINTENANCE

The door seal should be inspected regularly. It should be replaced if necessary (if it is worn or broken, etc.). The fire chamber lining should be inspected at regular intervals. It is made from natural products. As long as the fire chamber lining stays in place inside the fire chamber and does not start to break up, it remains fully functional. The stove must be serviced by a specialist each year (if possible, before the start of the heating season) to keep it operating efficiently.

Additionally, in the case of room air sealed stoves:
It is absolutely essential for the door seal to be in perfect condition so that a room air sealed stove can operate correctly. Visually inspect the seal for signs of pressure, wear, dents, etc., at least once per heating season. A damaged seal must be replaced immediately.

Do not modify the stove in any way. Only original parts approved by the manufacturer may be used. If you need spare parts, please contact your specialist dealer.

6.4.1 MAINTENANCE OF THE SENSO M H_2O / PIKO H_2O WATER HEAT EXCHANGER

The SENSO M H_2O / PIKO H_2O requires essential maintenance. The SENSO M H_2O / PIKO H_2O must be regularly and correctly serviced to keep it working at maximum efficiency. All safety devices, such as the thermal discharge safety device, etc., should be inspected annually before the start of the heating season. This inspection must always be carried out by a specialist contractor. We recommend that you take out a maintenance contract with your specialist contractor. That way, the annual safety inspection will automatically be carried out before the start of the heating season. A record of all annual safety inspections should be kept.

6.4.2 VENTING THE SENSO M H_2O / PIKO H_2O WATER HEAT EXCHANGER

SENSO M H_2O
The air bleed cock is located behind the top casing door. It can be opened using a 5 mm air bleed key.

The system should be vented:
- Before commissioning and again after the first few days' operation.
- If noises (air bubbles) can be heard in the heat exchanger.
- If the domestic water supply pressure has been altered.

PIKO H_2O
The air bleed cock is located in the lower compartment, near the heating connections. It can be opened using an air bleed key. Have a suitable

container or large towel ready to catch the water that drains out. A small hose may be attached to the bleed cock if desired. When the bleed cock is opened, water will come out of the vent pipe initially and then, after a few seconds, air will escape. Leave the bleed cock fully open for another five seconds after the air has escaped.

The system should be vented:

- Before and during commissioning.
- Daily for the next few weeks until no more air comes out.
- If noises (air bubbles) can be heard in the heat exchanger.
- If the domestic water supply pressure has been altered.

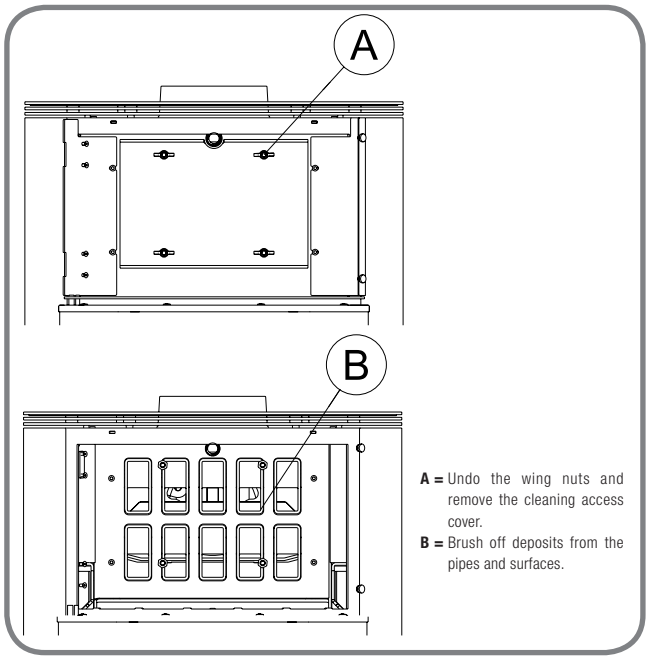
6.5 CLEANING THE SENSO M H_2O / PIKO H_2O WATER HEAT EXCHANGER

It is essential to clean the water heat exchanger. It needs to be regularly and correctly maintained in order to be fully effective. Always wait for the water heat exchanger to cool down completely before cleaning it.

SENSO M H_2O

As the water heat exchanger is in direct contact with the hot flue gas from the SENSO M H2O, and deposits on the heat exchanger surfaces inevitably result, these surfaces should be cleaned regularly with the brush supplied. How often they need to be cleaned depends on a number of factors, such as frequency of use, burning time, fuel, chimney draught, etc., and varies from case to case. We recommend cleaning roughly every 4 weeks. Cleaning intervals should be adapted to local conditions and cleaning should be carried out more often if necessary. All the components should be thoroughly cleaned at the end of the heating season.

The water heat exchanger is cleaned through the cleaning aperture provided. To access it, open the top door in the stove casing, undo the wing nuts and remove the screw cap. The heat exchanger surfaces are now exposed and can be cleaned using the brush supplied.



Re-assemble in reverse order. First, replace the screw cap on the cleaning access aperture and then tighten up the wing nuts to secure it in place.

In good operating conditions (good, dry wood, adequate chimney draught, correct air supply settings and sufficiently high flue gas temperatures) only a small amount of dirt will gather and in that case the cleaning intervals can be considerably extended.

PIKO H_2O

As the water heat exchanger cools the hot flue gas from the PIKO H_2O directly and deposits on the heat exchanger surfaces inevitably result, these surfaces should be cleaned regularly, using the integral cleaning system. **Cleaning should be carried out weekly or each time the ash pan is emptied** to prevent the cleaning mechanism from seizing up (due, for instance, to condensation/ sooting up because systems are not operating correctly, components are missing, etc.).

The handle to operate the cleaning mechanism is packed with the stove at delivery. For cleaning, it should be inserted into the 20 mm hole at the top left-hand side of the stove. After inserting the handle, turn it to the right and left about five times as far as it will go (about 20° rotation).

If greater effort is needed to work the cleaning mechanism after an extended period of operation, that indicates that the water heat exchanger is excessively dirty. In that case, please check the wood moisture content (less than 25%) and make sure that the heating system is operating as specified (minimum return temperature higher than 62°C). If you are not sure that the values are as specified, please contact your heating system installer.

When inserting the cleaning handle, take care it does not hit the enamelled edges. The soot dislodged by cleaning drops automatically on to the baffle plate in the combustion chamber and should be removed from there at least twice per season.

6.6 SENSO S RLU DOOR MECHANISM

The closing mechanism, and in particular the spring force of the closing mechanism, is preset at the factory for optimum door closure.

Should it be necessary to increase the closing force (door does not close by itself), proceed as follows:

The bottom inspection port has to be opened to access the door mechanism. After opening it, the closing mechanism can be seen on the hinge side of the firebox door.

To tighten up the mechanism, close the firebox door and apply a size 24 spanner to the spanner point (1) of the drive shaft.

Now turn the drive shaft anticlockwise to increase the spring force (see picture). Turn it in small increments (one tooth at a time). Then check the operation of the door mechanism. Optimum closing function is ensured if the closing hooks of the door engage and the door lies snug up against the stove body.

7. TROUBLESHOOTING

You can rectify the following problems with your stove independently, please contact your specialist dealer, stove builder or fitter for all other problems.

7.1 GLASS EXPERIENCING HEAVY, QUICK AND IRREGULAR SOOTING

If this did not occur from the very beginning, please check the following points:

- Are the correct fuel and technology being used? (see page 27)
- Are you in the transitional period? (see page 27)
- Are you experiencing atmospheric inversion? (see page 27)
- Is the combustion air control fully opened? (control lever pulled completely to the right)? (see page 24)
- Is the external combustion air flue unblocked? (see page 9)
- Does the sooting occur quickly within half an hour? (gradual soiling during operation of the system is normal. A car windscreen will also become soiled during a journey!)
- Is the firebox insulation a perfect fit?
- Is the wood dry enough? (see page 27)
- Has enough wood been added to the fire? (when the volume of wood is too low, an insufficiently high temperature is achieved in the fireplace) (see page 24).

7.2 FIRE IS DIFFICULT TO LIGHT

If this did not occur from the very beginning, please check the following points:

- Are the correct fuel and technology being used? (see page 27)
- Is the wood dry enough? (see page 27)
- Is the wood too thick? (see page 27)
- Has the air intake been sufficiently guaranteed? (see page 24)
- Are you in the transitional period? (see page 27)
- Are you experiencing atmospheric inversion? (see page 27)
- Is the combustion air control fully opened? (see page 24)
- Is the external combustion air flue unblocked? (see page 9)

7.3 SMOKE LEAKAGE WHEN ADDING WOOD TO THE FIRE

- See all questions in Point „7.1 Glass experiencing heavy, quick and irregular sooting“ on page 36
- Is the chimney unblocked?
- Has your stove already reached its operating temperature?
- Did you open the door slowly at the beginning? (see page 24)

7.4 FIRE BURNS TOO QUICKLY / WOOD CONSUMPTION IS TOO HIGH

If this did not occur from the very beginning, please check the following points:

- Has the wood been cut to a sufficient size? (see page 27)
- Is the chimney drawing air too strongly?
- Have you reduced the combustion air control (control lever adjusted towards the middle)? (see page 24)
- Are you using solid hardwood with 15 – 18 % residual moisture? (see page 27)
- Is the door completely closed?
- Have you kept to the recommended volume of wood? (see page 26)

7.5 WATER HEAT EXCHANGER IN THE SENSO M H_2O / PIKO H_2O

Thermal discharge safety device is constantly being triggered (constant discharge of water through the discharge valve). The water heat exchanger cannot pass on heat to the heating system.

- The accumulator tank is “full” → Extract heat from the accumulator tank.
- Check the functionality and settings of the pump thermostat and the load unit (heat charger).
- Set the pump setting one level higher (larger flow rate).
- Circulation pump is not running. Is the electricity connection defect?
- Bleed air from the stove.
- Check the system pressure.

Water escapes onto the floor area of the stove during the first few uses.

Insofar as the stove and the heating installation have been subjected to a pressure test after the installation, the escaping water is condensation from the fuel and the firebox lining. If more than 0.2 litres of water accumulates then the heating system pressure needs to be tested.

Gurgling noises in the water heat exchanger.

- Air in the system. Check the system pressure.
- Bleed the air from the system at the vent. In newly filled or topped up systems, it can take some time until all of the air has collected. Bleeding the air out of the system once is often not sufficient.

Thermal discharge safety device is dripping.

- Rinse out the thermal discharge safety device by pressing the red button on the fitting.
- Check the fitting of the connection seals and the pistons (see instructions for thermal discharge safety device).
- If required, integrate a filter into the system before the thermal discharge safety device (observe the minimum flow rate!)

Radiators are not heating up. Radiators that are not located in the installation room are cold.

- Radiator thermostats close when the set room temperature is achieved. The convection heat from the fireplace is being distributed into connecting rooms.
- The heating system is sluggish depending on the configuration. it takes a little time until the heating system passes on the heat.
- Hydraulically balance the heating system.
- Check the functionality of the heat circulation pump.
- Increase the amount of fuel used.

Greater and quicker soiling of the firebox lining and the ceramic glass panel. The firebox lining no longer burns free any soiling. Fire can only be lit with difficulty

- Remove deposits in the heat exchanger and in the connecting flue pipes to the chimney.
- Check the correct functionality of the pump thermostat.
- Ensure correct burning, wood feed quantities, wood moisture content < 25%.
- Correct the position of the air control lever.
- Check the correct functionality of the load unit (heat charger).

Quick soiling of the exhaust gas flues in the water heat exchanger. Inadequate burning performance

- Check the load unit (heat charger).
- Ensure correct burning, wood feed quantities, wood moisture content <25%.
- Remove deposits in the heat exchanger and in the connecting flue pipes to the chimney.
- Check the correct functionality of the pump thermostat.

8. GENERAL WARRANTY TERMS AND CONDITIONS

8.1 SCOPE OF APPLICATION

These General Warranty Terms and Conditions apply to the relationship between the manufacturer, Spartherm Feuerungstechnik GmbH, and the dealer/intermediary. They are not the same as the contract and warranty terms and conditions which the dealer/intermediary passes on or may pass on to its customers in a particular case.

8.2 GENERAL INFORMATION

This quality manufactured product is state of the art. The materials used were meticulously selected and are constantly checked, as is our production process. Setting up or installing this product requires specialized knowledge. Our products may therefore only be installed and commissioned by specialized firms and in compliance with statutory regulations as amended.

8.3 WARRANTY PERIOD

The General Warranty Terms and Conditions apply only within the Federal Republic of Germany, and European Union The warranty period and scope of the warranty in accordance with these terms and conditions shall apply apart from the statutory guarantee, which remains unaffected. Spartherm Feuerungstechnik GmbH gives a 5-year warranty

Basic body, fireplace inserts
Basic body, stoves
Basic body, fireplace cassettes
Basic body, fireplace doors

Spartherm Feuerungstechnik GmbH gives a 24-month warranty on elevating mechanisms, operating devices such as handles, adjustment levers, shock absorbers, electronic and electrical components such as exhausters, governors, original spare parts, all purchased parts and safety devices.

Spartherm Feuerungstechnik GmbH gives a 6-month warranty on wearing parts around the fire, such as fireclay bricks, vermiculite, fire grates, seals and glass ceramics.

8.4 REQUIREMENT OF EFFECTIVENESS FOR THE WARRANTY

The warranty period starts on the date of delivery to the dealer/intermediary. This must be verified from a document such as an invoice with the dealer/intermediary's confirmation of delivery. The warranty certificate relating to the product must be produced by the claimant when making a warranty claim.

If such proof is not produced Spartherm Feuerungstechnik GmbH shall not be obliged to honour the warranty.

8.5 WARRANTY EXCLUSIONS

The warranty does not cover:

- Wear and tear to the product
- Fireclay bricks vermiculite: These are natural products subjected to expansion and contraction during the heating process. This may create cracks. For as long as the linings remain in position in the fire chamber and do not break up, they remain fully functional.
- the surfaces: Discoloration of the enammelenamel or galvanized surfaces caused by thermal stress or overload.
- the elevating mechanism: If the installation instructions are not correctly followed, resulting in overheating of the pulleys and bearings.

- the seals: Reduced sealing due to thermal stress and hardening.
- the glass ceramics: Soiling caused by soot or burnt-in residues of burnt materials as well as visibly changed colour or other aspects due to thermal stress.
- Improper transport and/or incorrect storage
- Improper handling of fragile components such as glass and ceramics
- Improper handling and/or use
- Lack of maintenance
- Incorrect installation or connection of the unit
- Non-observance of the installation and operating instructions
- Technical modifications to the unit by third parties

8.6 DEFECT REMEDIATION / REPAIRS

Notwithstanding the statutory guarantee, which shall take precedence over our warranty during the statutory guarantee periods, within the scope of our warranty we will remedy free of charge all defects demonstrably due to a material fault or manufacturing error, provided that the other terms and conditions of this warranty undertaking are observed. In accordance with this warranty undertaking Spartherm Feuerungstechnik GmbH reserves the right either to rectify the defect or to replace the unit free of charge. Remediation of defects shall take precedence.

This warranty undertaking expressly does not cover further compensation exceeding the statutory guarantee.

8.7 EXTENSION OF WARRANTY

In the case of performance in accordance with the terms of the warranty, whether remediation of defects or replacement of a unit, the warranty period shall be extended in respect of the replacement unit/components.

8.8 SPARE OF WARRANTY

No spare parts other than those produced or recommended by the manufacturer shall be used.

8.9 LIABILITY

Damage and compensation claims not based on a defective unit supplied by Spartherm Feuerungstechnik GmbH are excluded and are not covered by the warranty undertaking.

This does not apply to statutory warranty claims arising in a particular case.

8.10 NOTE

Your specialist dealer/contractor will gladly advise and assist you in matters not covered by our warranty terms and conditions and undertakings. We particularly advise you to have your fireplace insert/stove serviced regularly by a stove fitter.

Subject to alterations and errors.

9. TECHNICAL DATA

		Stovo S	Stovo M	Stovo L	Sino L	Senso S	Senso M H_2O	Senso L
						RLU		
Technical data	Type of fuel	Chopped wood	Chopped wood	Chopped wood	Chopped wood	Chopped wood	Chopped wood	Chopped wood
	Nominal heat output	5.0 kW	5.0 kW	5.0 kW	7.0 kW	7.0 kW	7.9 kW	7.0 kW
	Wood feed quantity	1.5 kg/h	1.5 kg/h	1.5 kg/h	2.2 kg/h	2.1 kg/h	2.2 kg/h	2.1 kg/h
	Thermal output range	3.5 – 6.5 kW	3.5 – 6.5 kW	3.5 – 6.5 kW	4.9 – 9.1 kW	4.9 – 9.1 kW	5.5 – 10.3 kW	4.9 – 9.1 kW
	Efficiency	> 80%	> 80%	> 80%	> 78 %	> 80 %	> 85 %	> 79 %
	CO content at 13% O2	< 1250 mg/Nm³	< 1250 mg/Nm³	< 1250 mg/Nm³	< 1250 mg/Nm³	< 1250 mg/Nm³	< 1250 mg/Nm³	< 1250 mg/Nm³
	Dust emission	< 40 mg/Nm³	< 40 mg/Nm³	< 40 mg/Nm³	< 40 mg/Nm³	< 40 mg/Nm³	< 40 mg/Nm³	< 40 mg/Nm³
	Exhaust gas temperature at socketa flue outlet	273 °C	273 °C	273 °C	330 °C	260 °C	250 °C	330 °C
	Manometric pressure (draught)	0.12 mbar	0.12 mbar	0.12 mbar	0.12 mbar	0.12 mbar	0.12 mbar	0.12 mbar
	Exhaust gas mass flow	4.71 g/s	4.71 g/s	4.71 g/s	6.3 g/s	6.12 g/s	6.2 g/s	6.3 g/s
	Storage mass	–	↑35 kg / →48 kg	–	–	–	–	↑45 kg / →45 kg
	Weight depending on design	from 133 – 175 kg	196 kg	125 kg	227 – 260 kg	from 120 – 165 kg	165 – 233 kg	from 165 – 233 kg
Room heat-ing capacity according to WSchV 77	Favourable approx. (in m³)	165	165	165	186	186	186	186
	Less favourable approx. (in m³)	95	95	95	120	120	145	120
	Unfavourable approx. (in m³)	65	65	65	82	82	98	82
Minimum distances to combustible building materials	Rear (in mm)	160	160	130	80	100	100	100
	Side (in mm)	310	310	560	100	130	100	470
	Above (in mm)	500	500	500	500	500	500	500
	Thermal radiation field (in mm)	1000	1000	1000	800	900	800	1100
Requirements	DIN EN 13240	✓	✓	✓	✓	✓	✓	✓
	1st / 2nd level BIm SchV.	✓ / ✓	✓ / ✓	✓ / ✓	✓ / ✓	✓ / ✓	✓ / ✓	✓ / ✓
	DIN Plus	✓	✓	✓	✓	✓	✓	✓
	Regensburger standard	✓	✓	✓	✓	✓	✓	✓
	Münchener standard	✓	✓	✓	✓	✓	✓	✓
	Achener standard	✓	✓	✓	✓	✓	✓	✓
	DIBt room air sealed	–	–	–	–	✓	–	–
	DIBt approval No.	–	–	–	–	Z-43.12-278	–	–
	Art. 15a B-Vg (for Austria)	✓	✓	✓	✓	✓	✓	✓
	Air Purity Directive from 01.2011 (for Switzerland)	✓	✓	✓	✓	✓	✓	✓

* With modern heat insulation, significantly larger rooms can be heated.

Passo XS	Passo S / L	Passo M	Trias L	Piko S / L / Cubo S / L	Piko L HF / Cubo L HF	Piko H_2O	Piko M / Cubo M	Piko M HF / Cubo M HF	Piu L
RLU				RLU					
Chopped wood	Chopped wood	Chopped wood	Chopped wood	Chopped wood	Chopped wood	Chopped wood	Chopped wood	Chopped wood	Chopped wood
5,0 kW	7.0 kW	7.0 kW	7.0 kW	5.9 kW	5.9 kW	7.9 kW	5,9 kW	6.0 kW	7.0 kW
1.6 kg/h	2.2 kg/h	2.2 kg/h	2.1 kg/h	1.8 kg/h	1.8 kg/h	2.3 kg/h	2.2 kg/h / 1.8 kg/h	1.8 kg/h	2.2 kg/h
3.5 – 6.5 kW	4.9 – 9.1 kW	4.9 – 9.1 kW	4.9 – 9.1 kW	4.2 – 7.8 kW	4.2 – 7.8 kW	5.5 – 10.3	4.13 – 7.76 kW	4.5 – 7.8 kW	4.9 – 9.1 kW
> 80 %	> 80 %	> 80 %	> 80 %	> 80 %	> 80 %	> 83 %	> 80 %	> 80 %	> 79 %
< 1250 mg/Nm³	< 1250 mg/Nm³	< 1250 mg/Nm³	< 1250 mg/Nm³	< 1250 mg/Nm³	< 1250 mg/Nm³	< 1250 mg/Nm³	< 1250 mg/Nm³	< 1250 mg/Nm³	< 1250 mg/Nm³
< 40 mg/Nm³	< 40 mg/Nm³	< 40 mg/Nm³	< 40 mg/Nm³	< 40 mg/Nm³	< 40 mg/Nm³	< 40 mg/Nm³	< 40 mg/Nm³	< 40 mg/Nm³	< 75 mg/Nm³
255 °C	290 °C	290 °C	360 °C	325 °C	325 °C	215 °C	325 °C	330 °C	376 °C
0.12 mbar	0.12 mbar	0.12 mbar	0.12 mbar	0.12 mbar	0.12 mbar	0.12 mbar	0.12 mbar	0.12 mbar	0.10 mbar
7.22 g/s	6.7 g/s	6.7 g/s	5.2 g/s	4.9 g/s	4.9 g/s	8.6 g/s	4.9 g/s	5.1 g/s	7.9 g/s
–	–	↑60 kg / →60 kg	–	–	–	–	↑50 kg / →63 kg	↑50 kg / →63 kg	–
125 kg	160 kg / 165 kg	165 kg	200 kg	from 160 – 180 kg	200 kg / 205 kg	240 kg	175 kg / 180 kg	285 kg	185 – 245 kg
165	186	186	186	165	165	186	165	165	186
95	120	120	120	95	95	145	95	95	120
65	82	82	82	65	65	98	65	65	82
50	100	100	130	100	100	100	100	100	150
150	100	250	100	100	100	100	100	100	150
500	500	500	500	500	500	500	500	500	500
800	800	840	800	800	800	800	800	800	800
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
✓ / ✓	✓ / ✓	✓ / ✓	✓ / ✓	✓ / ✓	✓ / ✓	✓ / ✓	✓ / ✓	✓ / ✓	✓ / –
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	✓	✓	–
✓	✓	✓	✓	✓	✓	✓	✓	✓	–
✓	✓	✓	✓	✓	✓	✓	✓	✓	–
✓	–	–	–	✓	–	–	✓	✓	–
Z-43.12-364	–	–	–	Z-43.12-320	–	–	–	–	–
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

UNITS WITH CONNECTIONS TO WATER SYSTEM

The water connections are located at the bottom rear.

Technical Data	SENSO M H_2O	PIKO H_2O
Heat output to water	approx. 5,0 kW*	4,6 kW
Permissible operating water pressure	3,0 bar	3,0 bar
Max. perm. flow temperature[1]	105 °C	105 °C
Max. operating temperature	95 °C	95 °C
Minimum return temperature	60 °C	60 °C
Water-end resistance at 650 l/h	18 mbar	26 mbar
Minimum throughput of thermal discharge safety device	900 Ltr.	900 Ltr.
Water capacity	approx. 17 Ltr.	approx. 29 Ltr.

* The values shown represent the mean over a combustion period. These values apply under test conditions, burning approx. 2.2 kg split logs per hour.

[1] The thermal discharge safety device integrated into the heating system will trigger at a flow temperature of approx. 95 °C.

FOR YOUR NOTES:

10. COMMISSIONING RECORD

Date	Unit no. (see rating plate)				
Installation contractor					
Address of stove fitter					
System tested for leaks	☐ Yes ☐ No				
Safety devices tested (thermal discharge safety device, safety valve, expansion tank)	☐ Yes ☐ No				
Visual check of fireplace	☐ Yes ☐ No				
Functional test carried out	☐ Yes ☐ No			Trial firing carried out:	☐ Yes ☐ No
Only for SENSO M H_2O / PIKO H_2O Heating system vented Operating pressure checked	 ☐ Yes ☐ No ☐ Yes ☐ No			Please enter temperatures between fireplace insert and load unit: Return temperature ____ °C Flow temperature ____ °C	
Stove operator instructed in its operation and given Installation and Operating Manual	Signatures Installer / Operator				
Annual services					
Nature of work					
Name					
Date					
Signature					

IMPORTANT: Keep this Manual in a safe place.

• Please keep this Manual in a safe place along with a valid, clearly dated purchase receipt and have them available for our service engineers.